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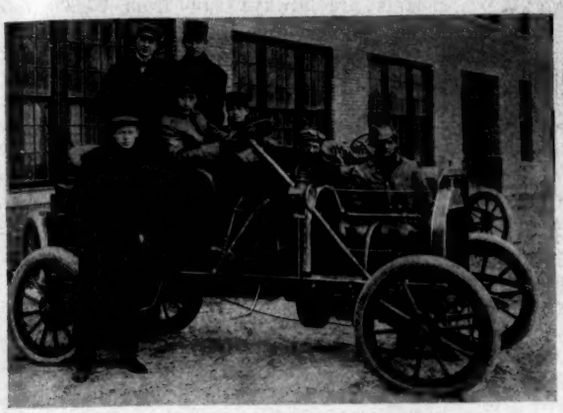
MOTOR AGE

DETROIT TESTERS AND HOW THEY WORK



SPECK'S WAYNE ROAD SCURRYERS

A Hardy Set, They Put the Motor Cars Through Their Paces on the Road and Discover Possible Defects

BIRMINGHAM AND THE PACKARD CREW

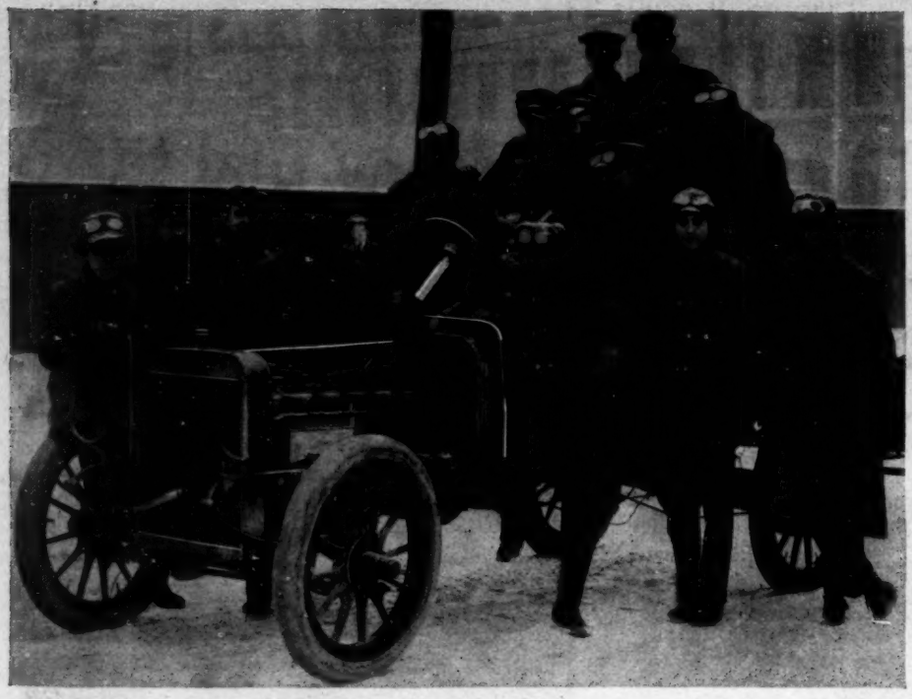
FROM the warm, comfortable interior of the chair car, whizzing along on the final stage of its journey to Detroit, the Pontiac pike, only a stone's throw away, presented a most inhospitable sight. A mid-winter blizzard, fresh from the ice wastes of Georgian bay, was roaring out of the northeast, driving a fine snow before it in clouds reminiscent of summer dust. Suddenly on the smooth but otherwise desolate ribbon of frozen gravel appeared a motor car. Whether it had dropped back to the flying train or had caught up with it from behind could not be told, but certainly it was keeping pace with the progress of the locomotive on the latter's polished track. And what a motor car it was! No drop of paint ever had decorated its apparently neglected surface. Its body more closely resembled a dry-goods box than anything else. Its engine, nude of the conventional covering, stood out bare and naked, with the radiator in front looming up like the signal mast of a big steam yacht. Its solitary occupant, perched on the makeshift seat, was bent rigidly over the steering wheel, relaxing only occasionally to make an adjustment with one hand while his car thundered on, keeping pace with the train, up hill and down. The daring driver's features were indiscernible, masked by a cloth head covering of peculiar design, and the ever-present goggles. Mile after mile the flying companions kept side by side, till finally a curve in the track carried the train away on a tangent while a swirl of snow swept the motorist out of sight.

To the average traveler the incident certainly possessed several points of mystery. Why the presence of a motor car at such a time, in such inclement weather and traveling at such a speed? Wherefore the incongruous equipment of what must obviously be so capable a car? What sort of man was it who could drive over a country road with such consummate skill and on so mysterious an errand?

But to the well informed citizen of a big motoring manufacturing center the case presented no mysteries at all. It merely was a tester trying out a car and earning his humble wage at the occupation which he pursued every day of the working year. The motor industry has developed no more unique character than this same tester. There are over 150 of his species attached to the Detroit factories, and to their efficiency is due no small degree of the success of the concern by which they are employed. Their duty is to take the assembled engine and chassis, fitted at the factory with the roughest sort of equipment, and thoroughly try out the working parts of the car by actual driving on the roads and streets. For 10 hours a day, excepting only the short rests at the factory while changing cars, a tester is at the wheel. Rain, snow, sleet, cold or blazing sunshine—it all is the same to him. The factory has contracted to deliver its cars on a certain date and each car must pass through the tester's hands. There is no chance for an idler or one who wants to pick the weather for his outings. The factory is finishing cars at a certain rate, and the testers must keep up. Nor can the work be slighted.

A testing room at one of the big Detroit factories is an interesting place. Each morning finds it full of the cars with the uncouth exteriors but the strong, throbbing engines. Each tester reports to the man in charge of the room and the head tester gives him his assignment. In winter the driver robes himself in his leather leggins, sheepskin vest, rubber-surfaced coat and other seasonable protection, kicks his feet into a long rubber bag as he takes his seat and sounds his horn. A boy slides back a big door and the car passes out. It may not be back till the lunch hour, for the tester carries with him a full set of tools and is expected to make many of his adjustments on the road. He must be a mechanic and usually is a man who has worked up through the factory.

After lunch it's out again for the afternoon, till darkness puts an end to the work. A fine, healthy life it is, and there are no consumptives or dyspeptics among them. From his daily work the tester becomes very naturally so expert in certain things as to appear almost uncanny. His engine talks to him with every revolution. He recognizes the voice of any make of motor car as far away as the explosions can be heard and identifies it as surely as



FRANK KULICK AND THE FORD COMPANY'S TESTERS

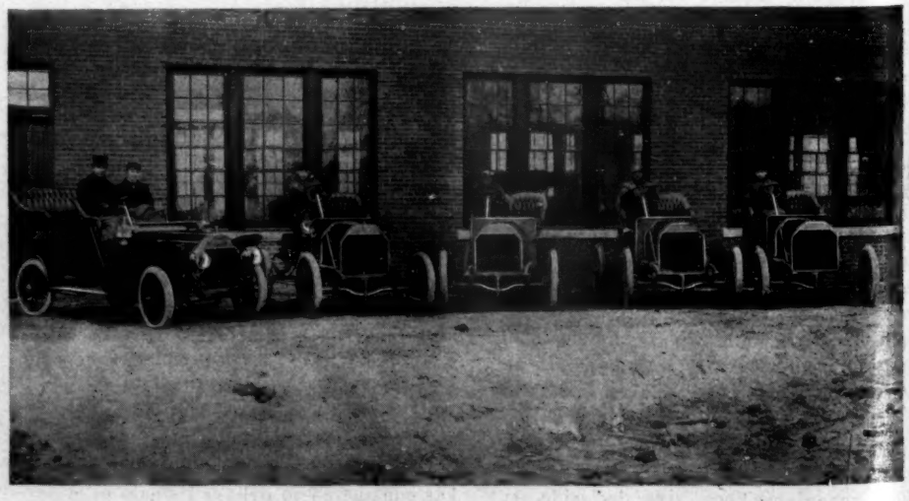
he would the tones from the throat of a member of his own family. The diminutive discord caused by one little valve spring set a mite too stiffly will catch his ear immediately. No suspension is so perfect that by his sense of feeling he will not immediately detect any inaccuracy in the engine's pulsations. He knows the roads for miles around so thoroughly that driving at night would be as easy as by day. Every little bump and rough stretch is as accurately charted in his memory as it could be on paper. Some of these men have authenticated records of upwards of 60,000 miles a season. They are at once the safest and most daring drivers in the world in the opinion of many.

And the tester knows by sight and sometimes, alas, by personal acquaintance, every policeman in his district, uniformed or not. All testing, whenever roads permit, is done in the country, but in the winter there are few country roads available. Occasionally complaints are made of reckless driving and a round-up takes place, though the police themselves recognize that the testers are really the safest drivers in the city. When a tester spots a cop, whether stopped or not, he immediately reports the whereabouts of the minion of the law to his superior at the factory, and a notice is posted warning other testers of the infested locality. Fines are paid by the factory, of course, but the factory isn't looking for chances to give away the money, and a sure sign of a good tester is the absence of a police record.

Many race drivers have been men drawn from the ranks of the testers. Among these at work in Detroit today is Frank Kulick, Barney Oldfield's old rival, who is head tester at the Ford factory. Others have achieved laurels and gained national fame by their adventures driving on the road. Such a man is Bill Birmingham, head tester at the Packard factory, whose exploits in the Glidden tour and the breakfast-to-dinner trip from Detroit to Chicago are well known. Birmingham is, in fact, one of the pioneer testers of America. He was the original tester for the Packard Motor Car Co. when its factory was started at Warren, O., and has stuck with the firm ever since. Common opinion in motoring circles in Detroit credits him with great skill when it comes to getting a car through on time, with American roads of the average sort as the basis of the itinerary. Birmingham scouts the theory, however, and doesn't believe he amounts to much. "I was all right in my own estimation," he admits, "till I got mixed up with that Glidden touring crowd. I held my own fairly well there till one day I got gay and stuck my hand into the gears like a greenhorn demonstrator. It came away shy this finger, and instead of giving me a little sympathy everybody has been poking fun at me ever since."

Even among the members of the trade there exists a good deal of confusion regarding the methods of the testers. It is a general boast among the retailers that at the factory which each represents a new car is handed to the testing force with the order to break it if possible. Of course there is no motor car ever built which could not be wrecked, and broken cars usually are the sign of poor testers, for modern mechanical accuracy has progressed to such a degree of perfection that practically no poor material gets into the motor car of today. The element of safety is usually five times the greatest possible strain of the roughest road, and the new models are always run from 20,000 to 50,000 miles before their designs are accepted. The testers are relied on solely to secure the highest possible engine efficiency and the presence of perfect lubrication in every part of the car. Their labors are being simplified in this respect of late years by the introduction of what is known in technical parlance as the rack. This is a device similar to the home trainer of the old bicycle days, and in many factories the testers are able by its use to correct any marked fault in the engines before they are taken out for the real road test. One advantage of the rack is the fact that the tester often can detect a discord in the rhythm of the engine which would hardly be audible from the seat of the car. But at all factories the road test is regarded as the important one.

The final test of all is the one for speed, and right here is a problem that is bound to necessitate some time the expenditure of a goodly sum of money on the part of the Detroit manufacturers for a 2-mile private stretch on which such a test may take place. The plan has been broached a good many times, but has yet to be put through. At present the head tester, who always conducts this test in person, is sadly put to it to find a track over which it can be made. City streets are out of the question. The boulevard and parkways are



WAYNE FORCES LINED UP AT THE FACTORY

FORD SIXES AND RUNABOUTS STARTING FOR DAY'S WORKOUT

available for short distances only. Country roads, except in the summer time, are too rough, and even at their best are utilized only under protest. Last summer the testers of a certain Detroit factory stumbled across a stretch of fine road out in Grosse Pointe township, only 10 miles or so from the city, and for a couple of weeks the head tester of the concern fairly burned it up. There were 2 miles of it without a crossing and it was as level as a floor. The mile in the minute was the standard he adopted for every car and one that couldn't show it was sent back to the factory for an overhauling. But signs of unrest became apparent. Farmers with headless chickens in their hands shouted imprecations at him as he passed. A dog or two rushed out to meet him and never again molested a motorist. One day as he tore down to his starting line a man rushed out in the middle of the road and made motions. The tester passed on like a meteor. Two pistol shots rang out behind him and the bullets whistled by. Approaching the imaginary half-mile pole signs of industry were discovered ahead. A man rushed out into the middle of the road, gesticulated, took a look and rolled into the ditch just in time. Right beyond the finish line as the tester thundered down two more farmers appeared, laboriously swinging the top of a very sizable tree across the road. They had just time to drop it and duck.

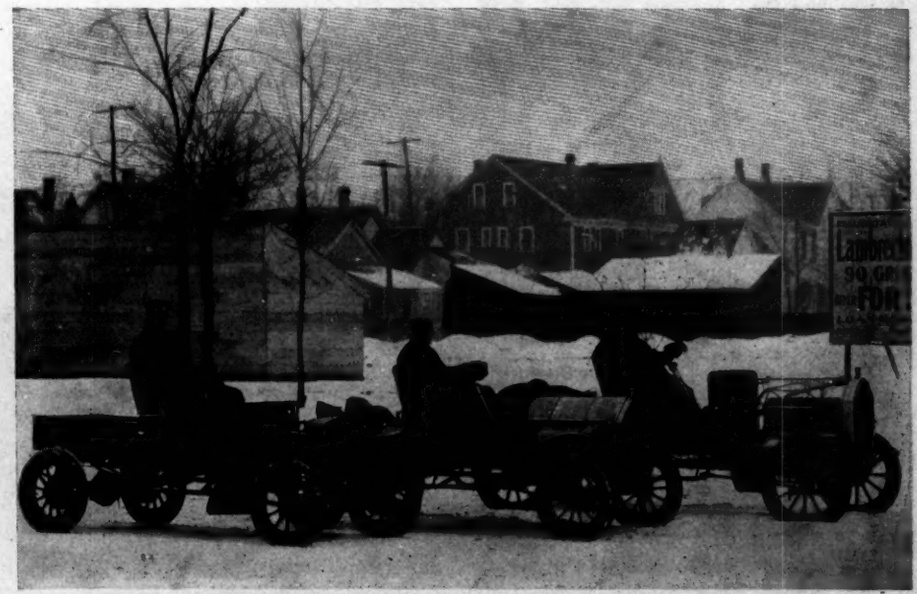
"I snapped my watch and grabbed my wheel," said the tester in telling of it afterward. "There wasn't a chance to get on either side of the hurdle, so I sent the car right into the thick branches. She hit like a Pullman train, jumped into the air and never touched for 50 feet. The limbs tore away at her under side, and when she struck she wasn't in line with the trail, but I managed to throw her around. The engine was working finely and she kept right on to town. Several miles further I loked her over and she was all right. My watch registered :58 1-5 for the mile, but it was my last mile on that course. I didn't want to run into a pile of ties or a couple of lumber wagons, so I changed my itinerary after that, you may be sure."

In these country speed trials the testers have acquired a huge amount of knowledge of rural natural history. They have discovered that, contrary to general opinion, the wisest domestic animal is the pig. The honk of the horn is enough to send the average porker around Detroit into the high grass and thence to the barnyard. Instances of pigs killed by motor cars are exceedingly rare. Next in order are geese, which, though not so fleet, have an unerring sense of the direction which will take them out of danger. Cows don't know much, but are big enough to protect themselves. Horses are a great nuisance by their inclination to keep to the road instead of getting out of the way. Cats seldom are met with on the highways. Dogs are the most feared, though they are becoming accustomed to the speed of motor cars, and do their barking at the side instead of maintaining their tactics in vogue at first to the great detriment of steering gear and canine mortality. The champion fool of the rural world is the chicken, which invariably runs across the path of the car when startled.

There is a cross roads about 5 miles from Detroit which has been for several years a testers' delight. It is yards deep in sand and would not be ordinarily esteemed a piece of good road. But for testing purposes it is ideal. Approaching it, the tester puts on full speed till he is traveling at something like 40 miles an hour. He takes the turn without a slow-down and throws the sand 20 feet into the air. Skidding is impossible, and the cars gets a twist that would surely discover any weakness if one existed. By September the twisting cars had excavated in this turn a hole a couple of feet deep, and this in spite of the fact that several times the turn was repaired by the motor concerns.

Taken all in all, however, the testers have greatly improved the Wayne county roads. The large tires help smooth down the inequalities in the path and the atmospheric movement sifts the dust into the lower crevices. In spite of the bursts of speed, no accidents ever have been recorded, and the farmers are coming to regard the professional motorist as a nuisance that must be tolerated, which is a considerable step in advance of the original idea which placed him among the common enemies of mankind.

There are makers of motor cars who have private tracks for the purposes of trying out their cars, but they are few in number. Therefore, the majority is forced to the road to discover whether or not there is any flaw in construction. It is this very need of a testing route that helped give birth to the idea of a motor speedway such as will be built on Long Island. The Vanderbilt road race was not the only thing the promoters had in mind when they sprung their scheme: they count on the trade support for the reason that a private course of this length over which motor cars travel to their utmost limit will prove attractive enough to induce the makers to liberally support the movement for courses of this sort.



NORTHERN DRIVERS ON A WINTRY MORNING

BIG ATTENDANCE AT TOLEDO'S SHOW

INTERIOR VIEW OF COLISEUM AT TOLEDO ON OPENING NIGHT

TOLEDO, O., March 23—With a few words from Mayor Whitlock and the touching of an electric button which caused 3,000 electric lights to burst into dazzling brilliancy and amid a tuneful blare of a patriotic selection from Van Doren's band, the first annual motor show ever held in Toledo opened at the Coliseum Thursday night. The attendance at the opening was close to 3,000 and at all times during the evening the large space in the middle of the floor was packed with interested people. At the same time the galleries were well filled and the spaces around the exhibits were crowded. Toledo's first show compared favorably with similar affairs in the larger cities, both in the interest displayed and from the point of attendance. With the exception of the shows at New York, Chicago, and Boston, there was apparently no material difference in any particular. The real feature of the show was the short time in which it was organized. It was less than a month ago that E. E. Fix first began to talk show to the local dealers. It was a week before he had aroused enough interest to say he had made any start. After that the work went on without a halt and the results were astounding. Every dealer in the city excepting one took hold of the work. The attendance was far above anything anticipated. The entire city showed an interest that was not looked for and the people turned out by the thousands. For 3 days everybody was talking show and 28,000 people saw the exhibits. One peculiar feature was the great number of country people present. It has not been until within the last year or so that a farmer would look on a motor as anything but his one enemy. This feeling in this part of the state seems to have disappeared if the attendance of the farmers at the show may be taken as a guide. Considering the plan on which the show was run the number of people who attended is larger than that at almost any other show this year. The Coliseum was thrown open at noon and closed promptly at 11 o'clock each night.

There was only one point on which the Toledo show fell short and that was in the decorations. The color scheme of purple and white was carried out as far as possible and was tasty so far as it went, but the short time in which the work had to be done cut the decorations down to the minimum. As it was thousands of yards of bunting were used, but a more elaborately decorated hall would have added much to its appearance. There were sixty-five cars on exhibition.

The Pope Motor Car Co., under the management of Bert Gamble, showed a line of Pope-Toledo, Winton and Columbia cars. One of the features of this exhibit was the trophies won by the Pope-Toledo. Also shown were an electric coupe, two Pope-Toledo runabouts type 12, one Pope-Toledo runabout, Pope-Toledo landaulet, Pope-Toledo limousine type 12, Pope-Toledo touring car type 15, Pope-Toledo touring car type 10, Columbia electric brougham mark 69, Columbia electric victoria mark 49, Columbia passenger touring car, Baker electric victoria, Winton model M, Winton touring car type 14, Winton runabout.

The Dosson Carriage Co. had on exhibit one Holsman buggy. The Atwood Automobile Co. had one Pope-Waverley model 53 special, Pope-Waverley model 57, Pope-Waverley model 26, Pope-Waverley model 69, Pope-Hartford model L runabout, Franklin model G, Franklin Model D, Elmore model 16, Elmore model 18. The Rivers-Jacoby Automobile Co. showed a Craig-Toledo runabout, a Jackson model G four-cylinder, Jackson model D two-cylinder shaft-drive, Jackson model C chain-drive, Rambler touring car model 21, Rambler runabout model 27. The Lichte Automobile Co. had a Cadillac victoria model M, Cadillac coupe model M. Cadillac four-cylinder model G, Cadillac four-cylinder model H, Cadillac runabout model K, Cadillac light touring car model M, Cadillac folding tonneau. E. B. Torgler displayed a Jewel model D two-cycle engine, a Jewel chassis and a Jewel model E. The Kirk Brothers' Automobile Co. exhibited two Thomas Flyers, one Thomas Forty runabout, one Thomas Forty touring car, Buick four-cylinder touring car, Buick two-cylinlder, Buick two-cylinder runabout and Babcock electric stanhope. The Central Carriage and Automobile Co. had a Mitchell four-cylinder, Auburn two-cylinder, Maxwell runabout, Maxwell speedster. The Reliance Motor Car Co., of Detroit, had on view a heavy truck.

LINEUP OF PARADE AT INDIANAPOLIS

LIKE SHOW WEEK IDEA

Indianapolis, Ind., March 25—The motor opening, the first that this city has ever had, was distinctly a success last week. Dealers are wondering why they never thought of it before and it is certain that in the future an opening week will be observed annually. Weather conditions were ideal from the time the parade started last Monday afternoon, until the last shop closed its doors Saturday night. Throughout the week the city was thronged with motor enthusiasts in a buying mood, as evidenced from the fact that nearly 200 cars were sold, representing an expenditure of from $200,000 to $250,000. Every agent in the city has a neat bunch of orders and the only disappointing feature was that there were not enough cars in stock to fill orders on the spot. The parade Monday afternoon attracted many excursionists to the

city and there were about 250 cars participating, ranging from a $400 buggy runabout to $6,500 limousines and 5-ton electric trucks. A noteworthy fact is that of the lot there were not over twenty-five cars that were not 1907 models, remarkable in that many owners took part.

Considerable surprise was exhibited at the large showing of commercial cars made in the parade. This is the first season Indiana dealers have sold cars of this type, orders heretofore having been placed direct with the factory. The parade, however, indicated that local dealers are going after commercial car business this year. Following the parade the various garages were formally thrown open for the week and soon were thronged with visitors. The crowds continued all week and demonstrators were busy from 7 a. m. until 11 p. m. Even then the extra number of demonstrators employed was hardly adequate for the purpose. Each garage vied with the others in providing attractive decorations. The Capital Automobile Co. had a pretty display of ferns and potted plants, while the Indiana Automobile Co. store was droped with flags and bunting inside and out. The H. T. Hearsey Vehicle Co. store was draped with flags and bunting in the first floor being given over entirely to the motor display room and offices. The offices were divided from the show room by an arch made from the plaster decorations used at the Chicago show. On Wednesday evening the Boyd Automobile Co., which recently has moved into a handsome new three-story building, gave a reception and dance. The Indiana Automobile Co. entertained about 400 guests Friday evening at its garage.

At 6:30 o'clock the morning of March 20 the Wayne touring car which was trying for a 3,000-mile non-motor stop record during the show week was guided into the curb at College avenue and Twentieth street in order to save the life of a pedestrian. The test thus came to an untimely end and Clifford Harrod, the driver, and J. F. Newman, observer, both had narrow escapes from death. During the 114½ hours the motor ran 2,002.9 miles.

MOTOR CAR PARADE IN INDIANAPOLIS IN MOTION

PITTSBURG ENCOURAGED

Pittsburg, Pa., March 25—The outlook for the coming show at Duquesne Garden is so good the show committee consisting of Thomas I. Cochran, W. H. La Fountain, Earl Kiser, W. N. Murray and Robert J. Sample have predicted a most successful show. There will be a strong line of accessories represented and sixty makes of cars, representing at least 150 models. There also will be several displays of tires. Practically the only new models which have not been tried out in the Pittsburg district are the De Luxe, Jewell and Holtsman. As the weather has been bad up to this time there will be heavy buying at the show, it is expected, as the state license list shows that only 5,000 licenses have been granted to date. Many of the dealers will carry cars in stock for the show so that they may make immediate deliveries during show week.

ENGLISH SHOW TAME

London, March 16—The commercial vehicle and motor boat exhibition, held by the Society of Motor Manufacturers and Traders did not set the Thames on fire. It was a good show in its way; very representative of the lines of trade it was founded to exploit. There were about 250 exhibitors, of whom fifty were motor vehicle concerns, about thirty motor boat firms and the remainder accessory, tire, tool and component manufacturers or agents. The latter class apparently fared best and some were quite cheerful, but the motor boat and heavy vehicle sections were almost neglected during the major portion of the week. The show did not attract the public to an extent to make it remunerative to the society or even lively for the exhibitors. But it was a very fair start and with more go and advertising energy inducted into the business for next year it may turn out a very good thing for the trade. The feature of the show was the comparative absence of motor cabs and light delivery vans. The heavy vehicle section in buses and lorries was much the best and most representative. But the commercial motor vehicle is under a cloud here at the moment and the show suffered as a consequence. Light commercial vehicles such as delivery vans, cabs, etc., are too expensive for those who would use them privately, while the public cab companies are discovering that the motor vehicle is really a tough proposition in competition with the horse-drawn line. Motor bus companies are closing down week by week all over the country—small affairs floated under the misapprehension that the motor bus was a gold mine—and it is expected that when the London motor cab results are announced there will be a terrible hump in some places not over level at the present time. As for motor boat interests they are as dead at the moment as Ptolomey. The whole public interest has become so bound up in the pleasure motor car that the motor boat, motor cycle and commercial lines are all left to drift and are doing so very evidently despite the gallant efforts of a few enthusiasts to arouse interest in each.

SHOW IN CALCUTTA

Calcutta, India, Feb. 5—Lady Minto recently gave a fancy fete and one of the features was the motor car exhibiton, the first of its kind in Calcutta. There were fifteen stands and a number of English and French cars were displayed. In addition there were several makes of motor cars and a couple of displays of motor boats. Accessories also were shown in all makes and styles at the show.

CORNER OF COLISEUM IN WHICH TOLEDO SHOW WAS HELD

N.H.Van Sicklen, Manager

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Charles P. Root, Editor

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MICHIGAN'S DAMAGE LAW

LEGISLATORS of the state of Michigan are wonderfully solicitous for their constituents, so long as the constituents do not happen to be motorists. A bill has been introduced in the legislature providing that anybody injured by a motor car can recover damages from the state, but there is a provision in the bill which makes all motorists supply the damage fund and whether a motorist is a careful, consistent, safe and decent driver and does no damage to person or property he is in the same category with the other kind, that has no regard for anybody's rights. So, for all the damage the indecent motorist does, the decent must pay. A pedestrian or a driver of a horse needs only have an accident and lay it to a motorist—he doesn't have to even know that a motorist caused the trouble—and the state will pay damages after he has gone through the form of bringing suit against the state and swearing that a motorist was responsible for the accident. No particular motorist need be blamed and in order that the innocent may suffer along with the guilty, each motorist in the state must pay into the damage fund $5 each year. Even up to a year ago it was thought insane legislation was at an end, but Michigan legislators are original if nothing else and do not propose to let good things slumber and thereby keep the state from deriving that little bit of advertising to which it may be entitled.

AMERICAN MAKERS INTERESTED

NOTWITHSTANDING the fact that nothing of a definite nature is known concerning the Long Island highway, on which it is proposed to run the Vanderbilt cup race, and notwithstanding the fact that it is not known positively there will be a 1907 Vanderbilt cup race, the American makers are going ahead in the matter of preparation for the event as if all the details had been arranged and the dates had been announced. A tentative announcement that the race will be held on a new 16-mile course has been made. Already there are some seventeen makers who have signified their intentions of entering cars, and some to the extent of three each, so that today there are twenty-five American cars that will be lined up before the starter of the eliminating trial—if some of the entrants are not before the public now for pre-race advertising and with no real intentions of starting a car in the eliminating event. Many of those who have signified their intentions of entering have been before the public before in the Vanderbilt cup event and the others are known not only as live advertisers but live all the way through. The prospects for a try-out truly representative American are the best, if the race is held at all. It will be up to the American Automobile Association to provide some event to take the place of the Vanderbilt cup race if the latter is not held in this country this year, for it would be an injustice to the seventeen American makers who want to race their cars to permit them to go ahead at great expense in preparation for the event, to say nothing of the foreign entries that are reasonably sure to be made. The interest of the American makers suggests that while a very few are out for advertising alone the majority are desirous of showing the world that the American car can be depended upon to maintain its reputation against the world not only in the mechanical field but also in the matter of speed.

DATING SHOWS EARLIER

THE manufacturers of motor cars have come to realize that the early show is a matter of necessity if the winter months are to be devoted to turning out cars to meet the ever growing demand upon their shop resources. It has taken a number of years of argument to so convince them, however. It was a somewhat radical move on the part of the National Association of Automobile Manufacturers to set its show dates back from February to December. It is more than likely that the Automobile Club of America will now announce its show to take place as early as the first week in October, for the Association of Licensed Automobile Manufacturers has already announced a change of date so its show will be held the first week in November. With the national shows at an end before the beginning of the new year, the makers will be in a position to attend to manufacturing alone, feeling secure that all agents have been cared for and that the general public will be given its inning by the selling branches and agents well before the buying season has fairly opened in the spring. As the matter now stands Paris, London, New York and Chicago shows will have been matters of history before another year shall have rolled around and the world will know the new things several months before the accustomed time for imparting this interesting information. That the experiment of early shows will prove profitable to the makers there is not the least doubt; that it will mean the manufacturing of more motor cars is a foregone conclusion; that it will make motoring more popular will be proved when another season shall have arrived.

MARYLAND'S MODEL MARSHAL

MARSHAL COLLINS, of Glen Echo, Maryland, is not the ordinary official; he is not the kind that believes in discriminating; incidentally he is reaping a pretty fine reward for himself and the hamlet which he guards. Motorists have been the marshal's chief trouble—also his chief source of profit—for a year or more and his efforts to bring about Rooseveltian reforms have caused his name to leave something of a disagreeable taste in the mouths of motorists and call out praises from the Glen Echoites. He doesn't let a motorist escape if he can help it; they've got to stop for the marshal whether or no—and usually the marshal profits by the stops. Some Washington motorists have deemed it judicious to disregard the marshal's signals to stop and be held up and have heard the whir of bullets; others have been ungentlemanly enough to cause their cars to stop suddenly when the marshal was in close pursuit on a bicycle, with disastrous results to the marshal. Still the marshal keeps up his fight. Motorists have at times made up their minds to squelch the doughty marshal, but to no purpose—he isn't one of the squelching sort.

CHICAGO TRADE CONDITIONS

CONDITIONS in the Chicago trade are peculiar—competition is at fever heat—motorists are being added by hundreds. Chicago dealers do not fight to sell motor cars—they fight to place them—and when a trade cannot be made by the delivery of a car alone, a fat bonus is offered as an additional inducement. Chicago dealers are magnanimous not alone because they want to see motoring as popular as was cycling a dozen years ago, but because they believe in the endless chain system—that each new motorist will make at least two more and that in the long run the trade will profit thereby. Some people have termed this magnanimity as a form of being buncoed and are warning other dealers in other places not to be too enthusiastic over making sales.

WHEN St. Louis and Pittsburg shall have closed the doors of their respective show halls the last of the season's motor car exhibitions will have been held, much to the relief of the trade in general and the show circuit-chasers in particular. There have been shows galore the past winter, almost every city of motoring prominence having had its inning at the bat. The trade will find—before another show season has passed—that some sort of system or local show circuit will prove necessary in order to remove to some extent the cost of these affairs. The shows must be purely local or purely national—there can be no half-way proposition in so extensive and so expensive a game.

ACCORDING to latest information it has been practically decided that the Vanderbilt cup race will be held over a dumb-bell-shaped course on Long Island, the course to be about 16 miles in circuit. This is a modification of the course presented by Motor Age the week following the last cup race, when there were several regrettable accidents occasioned by people crowding on the roadway.

INDIANA is certainly a good roads state—would there were more as enterprising as the Hoosiers. Up to the close of 1906 the northern part of the state in particular was well ribbed with good macadamized highways always well kept up; at this moment miles upon miles of new roads are being constructed. Indiana is apt to reap something of a harvest from the motoring tourist, who is willing to part with his money along any highway that offers decent going. Indiana is the natural goal for Chicago motorists, but they are kept from receiving the benefit of the roads of their neighboring state simply because the highways leading to the state line—all in their own city—are so miserable as to make driving not only most uncomfortable but dangerous to some of the vital parts of the car. Chicago can stand about as much road reform as it can a good many other things.

WHIP-SOCKETS on motor cars are something of an anomaly; yet there are not a few cars equipped with those familiar receptacles for carrying the long, slender equine convincers. Philadelphia has several such—and the whips are not for use on motor cars, either. They are designed to carry conviction to the mind of the funny boy who finds amusement in peppering motorists with peas. These dried pellets, with the force exerted by the lungs of a healthy boy behind them, hurt like blazes. So does the carriage whip.

BRITISHERS naturally see more in the change of the name of the Automobile Club of Great Britain and Ireland to the Royal Automobile Club than can most native-born Americans. The former take the change as a command, as permission of royalty signifies, and construe the king's action as an unqualified endorsement of the motor car and motoring. There are other royal motoring organizations, however, Germany having the Imperial Automobile Club and Spain and Portugal also being in the list. The United States is as far away as ever from receiving the chief executive's endorsement of motoring, but there is a chance for the Automobile Club of America to turn a neat advertising trick and there are some people who might become members of the organization were it to receive some such honor as that bestowed upon the leading foreign clubs. How nice it would be to become a member of a royal motor car organization!

PRIVATE races over public highways do not, usually, bring about the results the contestants expect when they enter into such affairs. In the first place they are apt to call forth criticism from the non-motoring public in general and from some motorists, notwithstanding a close observance of speed laws. The public cannot be convinced that speed laws have been observed when it is known such affairs are races—and because of the fact that there are no rules and no regularly appointed officials they become go-as-you-please affairs, with results in the balance because of the varying statements of the contestants. It is the hope of the promotors of the Long Island highway that such affairs as that run between New York and Boston will be held on that course, not only to remove possible infractions of speed laws and consequently public criticism, but that they may be regularly officered and judged.

ANNOUNCING early show dates came none too soon if the state of the weather for the past few weeks is taken into consideration. This year's output ought to be disposed of in a very short time if the exceedingly satisfactory weather recently furnished is maintained for a short time, for driving will be at its height long before the usual time of the year. Already the agencies and factories are being implored to push deliveries in order that the full enjoyment of a beautiful weather and comparatively good roads may be enjoyed to the utmost. Trade conditions for the spring of 1907, made possible to a large extent by the weather, have been unprecedented, and will go a long way toward influencing the purchaser of another season to place his order in time to permit him to become a member of the flock of early birds.

THE WEEK IN BRIEF

Association of Licensed Automobile Manufacturers states it will hold its show in Madison Square garden week of October 31-November 7; General Manager Miles, of N. A. A. M., says Chicago show will be held week of November 30-December 7; A. M. C. M. A. not ready with its plans.

Tentative course mapped out for Vanderbilt cup race; circuit only 16 miles in length—two 7-mile straightaways and two loops of mile each; twenty-seven American cars already promised for classic.

Mechanical branch of Association of Licensed Automobile Manufacturers issues annual report in which it tells of its steel investigations; vanadium receives high praise.

Marshal Collins, of Glen Echo fame, gets into limelight again by firing on car in which are riding prominent Washington society people.

Announcement is made of flotation of British business of de Dion-Bouton for $780,000; $340,000 asked for patents and royalty fees.

Automobile Club of Great Britain and Ireland changes its name to Royal Automobile Club through courtesy of King Edward.

Benjamin Briscoe announces makeup of committees of the American Motor Car Manufacturers' Association; eleven bodies named.

Three-day show at Toledo proves success; 28,000 people look at exhibits.

COMING MOTOR EVENTS

April 1-6—St. Louis Automobile Dealers' Association, show at St. Louis in Jai Alai building.

April 2-15—Monaco meeting.

April 6-13—Montreal, Canada, second international motor car and sportsman's exhibition. R. M. Jaffray, manager, 309 West Notre Dame street.

April 8-13—Pittsburg Automobile Dealers' Association show at Pittsburg in Duquesne garden.

April 11, 12, 13—Denver show, G. A. Wahlgreen, manager.

April 18-20—Targa Florio, in Sicily.

April 25-28—Touring competition, under auspices of the Automobile Club of Turin.

April 28—Chanteau Thiery hill-climb.

May 1-15—Paris-Madrid touring competition to Madrid exhibition.

May 15-31—Automobile Club of the North, industrial vehicle competition.

May 18-21—Milan touring competition.

May 18-21—Auto-Cycle Club of France, Paris-Ostend-Paris.

May 24-27—Automobile Club of Austria, volturette contest.

May 31—Automobile Club of Auvergne, Rochet-Schneider cup race over Auvergne circuit.

June 14—German emperor's cup touring car race in Germany.

NEW RACE IS PLANNED

A. A. A. Considering Touring Car Event to Follow Vanderbilt—Referred to Racing Board

New York, March 27—Special Telegram—Not the least important of the matters acted upon by the directors of the American Automobile Association at their meeting today was the suggestion of Edgar Apperson, of Kokomo, and H. O. Smith, of Indianapolis, that following the Vanderbilt cup race there be run a race for American stock touring cars in which stock chassis fitted with racing bodies should alone be eligible. The suggestion is that the race be from 200 to 250 miles in length; that eliminating trials be run, to be followed by a final; that each maker be limited to two entries and that the limit shall be on the basis of an aggregate cylinder displacement. The suggestion met with unanimous approval, including that of Manager Pardington, of the Long Island motor parkway, and was referred to the racing board. Along with the suggestion came a list of eleven prominent motor car engineers of all patents persuasions who, it was recommended, should meet at Indianapolis on April 13 to draw up rules of eligibility and conditions for the contest. An entrance fee of $100 per car was proposed and the nomination of two Appersons, two Premiers and two Franklins pledged. Chairman Hower, of the touring board, made a report on the route and rules for the annual tour. These will be manifolded and sent out for publication Sunday.

New York, March 25—It is now practically decided that the next Vanderbilt cup race will be run over a 16-mile dumbbell shaped course, made up of a straightaway of about 7 miles and two loops of a mile each. The cars will pass one another going and coming on a portion of the proposed Long Island parkway 50 feet wide, the racers in opposite directions being separated from one another by a chalk line or perhaps by no indicative barrier whatever. In the coming race, it will be seen, only part of the proposed 60-mile pathway will be used for the race. In future contests, however, the entire length with loops at either end will be employed. Work is to be rushed so that the temporary race course will be ready for the practice of the racers by September 1 at the latest.

Land has been bought outright for the construction of the loops. There will be a monster permanent grand stand erected somewhere near the intersection of a loop and the straightaway. From this stand spectators will not only have a view of the cars coming and going for a mile down the straightaway, but of the racers as they round the loop as well. In a word, at every moment of the race cars are likely to be in view either speeding on the straightaway or around the big loop. On the course, and in fact along the entire parkway, there will be no crossings at grade, the roads en route being spanned by bridges, the rise to which will begin at least 300 feet away, making the grades comparatively slight. It is hinted that the hills on the loops will be sufficient in themselves to try out a car's climbing ability. The exact location of the grand stand and course has not yet been made public.

DE DION FLOTATION

London, March 16—The event of the week has been the flotation of the British business of de Dion-Bouton for $780,000. The business has always been one of the soundest and most lucrative of the selling agencies in this country. It has earned gradually-increasing profits, rising from $16,000 in 1901 to over $80,000 in 1906, but it is generally considered that the promotion figures are indefensible to the verge of absurdity. The vendors, who appear to have bought the concern from S. F. Edge and his friends for reflotation, asked $340,000 for patents and royalty fees. Most of the patents have lapsed and the others only cover very debatable matters possessed of a short life in any instance; $100,000 is demanded for flotation expenses, $120,000 for the actual stock, good will and contracts of the British de Dion-Bouton Co., while the whole of 200,000 25 cent deferred shares—which take two-thirds of the divisible profits after the ordinary 185,000 ordinary shares obtain a stipulated 7 per cent—were retained by the vendors, so that the investing public had to pay about $520,000 for the concern on a 7 per cent basis.

COLLINS IN LIMELIGHT

Washington, D. C., March 25—Marshal Collins, of Glen Echo, has got into the limelight again, this time for firing at a car, it is said, that contained Duke Albert de Luynas de Chaulnes et de Picquiny, of Paris, and Miss Rhoda Shonts on the conduit road. He is said to have fired two shots because the car did not stop at his command. Motorists are secretly rejoicing over an "accident" that recently happened to Collins. It appears Collins was recently standing in front of the Glen Echo postoffice, when a large touring car came bowling down the road at 25 miles an hour. Collins immediately mounted his bicycle and tacked on behind. The driver of the car, with malice aforethought, slowed up sufficiently to let Collins get hooked up well behind the car, and then carried him down the road for a mile or two at a good rate. Suddenly the car came to a dead stop, and Collins, not being prepared for the sudden stoppage, crashed into the tonneau of the car. Before he could recover the driver got away.

GIVE STEEL GOOD TEST

A. L. A. M. Engineers Report on Experiments in Hartford Laboratory—Praise Vanadium

New York, March 25—The mechanical branch of the Association of Licensed Automobile Manufacturers in its annual report on materials which have been tested and experimented upon at the Hartford laboratory for the past year gives complete specifications for various kinds of steel which have been found to be most desirable for specific parts of motor car construction. During the year scores of samples of special steel of unusually high grade have been tested. They were tested in the natural condition, as received from the steel works, tested annealed for heat treatment and tested to ascertain the toughest possible condition combined with strength. Some of the steels experimented with were silicon and manganese with chronium, vanadium, silico manganese, chrome nickel and nickel. Vanadium, which is just becoming known to some manufacturers, has been under experiment for nearly a year at the Hartford laboratory. Many of the members of the association have been using vanadium steels for over a year, but only since the tests which have been made by the association's metallurgical force has the recommendation and adoption been universal with the association members. The results of the experiments have proven the desirability of vanadium steels for special parts of motor car construction. It is a most elusive element and its introduction to the basic material must be carefully made. It seems to act as a cleanser if judiciously used, and eliminates many elements which otherwise would be a detriment to the steel. J. Kent Smith, the English metallurgist and exponent of vanadium, states authoritatively that "vanadium steel is the finest steel for mechanically moving machines." The elements of vanadium are to be found in many substances, but only in microscopic form. Swedish iron contains a small quantity of this valuable material. The presence of vanadium in steels has a tendency to add longer life, strength and durability. It is easily welded, it is superior in rigidity and extremely easy to machine. Its elastic limit under all conditions is extremely high as compared with the tensile strength, for use in gears, frames, axles, crankshafts and propelling shafts. Vanadium steel is considered to be more serviceable than any other metal known, the A. L. A. M. experts declare.

Specifications for the treatment of metals for screw material, cylinder iron, steel castings and nickel castings were issued with directions for obtaining the maximum results in their use.

The visit of the members of the me-

chanical branch, in a body, to the Bethlehem Steel Works was accompanied by some interesting results. The branch spent the entire day minutely inspecting the methods employed by the Bethlehem company in the manufacture of special grades of steel. Investigation by the test committee brought out the fact that not only was there considerable variance between the practice of various manufacturers in the use of taps and drills, but even the screw manufacturers were at variance in their own establishments. A standard drill size was suggested and adopted by the members of the branch and the outside makers of drills and taps. The adoption of a uniform magneto base was thoroughly recommended, especially when it is known that many new magnetos are to be placed on the market. The tendency of the makers for their 1908 models will be the use of magnetos and with a standard base, so that option on magnetos can be given without reconstruction of base standards.

A. M. C. M. A. COMMITTEES

New York, March 25—Benjamin Briscoe, chairman of the committee of management of the American Motor Car Manufacturers' Association, has appointed the following committees for 1907:

Show committee—H. O. Smith, Premier Motor Mfg. Co., chairman; William Mitchell Lewis, Mitchell Motor Car Co.; J. B. Bartholomew, Bartholomew Co.

Tours and races—W. C. Marmon, Nordyke & Marmon Co., chairman; V. A. Longaker, American Motor Car Co.; F. M. Keeton, De Luxe Motor Car Co.; John Dolson, Dolson Automobile Co.; E. K. Conover, Conover Motor Car Co.

Good roads—Charles Lewis, Jackson Automobile Co., chairman; James Couzens, Ford Motor Co.; John Kane Mills, Dragon Automobile Co.

Legislation—R. E. Olds, Reo Motor Car Co., chairman; Sidney Breese, B. L. M. Motor Car and Equipment Co.; George C. John, St. Louis Car Co.

Membership—W. H. VanDervoort, Moline Automobile Co., chairman; Morris Grabowsky, Rapid Motor Vehicle Co.; Jesse French, Jr., St. Louis Motor Car Co.

Advertising and publicity—Charles E. Duryea, Duryea Power Co., chairman; G. B. Loudubback, Buckeye Mfg. Co.; F. M. Keeton, De Luxe Motor Car Co.

Finance—James Couzens, Ford Motor Co., chairman; R. G. Harrison, Harrison Wagon Co.; L. C. Boyd, Marion Motor Car Co.

Standardization and technical—John D. Maxwell, Maxwell-Briscoe Motor Co., chairman; Charles E. Duryea, Duryea Power Co.; Henry Ford, Ford Motor Co.; R. B. Crawford, Crawford Automobile Co.; L. P. Mooers, St. Louis Motor Car Co.; R. E. Olds, Reo Motor Car Co.

Freight and transportation—W. G. Morley, Aerocar Co., chairman; Harry Knox, Knox Motor Truck Co.; S. H. Mora, Mora Motor Car Co.

Tires—William Mitchell Lewis, Mitchell Motor Car Co., chairman; James Couzens, Ford Motor Co.; J. B. Bartholomew, Bartholomew Co.

Agencies—Roger J. Sullivan, Wayne Automobile Co., chairman; W. H. VanDervoort, Moline Automobile Co.; George C. John, St. Louis Car Co.

BOSTON AFTER THE GLIDDEN

Boston, Mass., March 25—The Bay State A. A., of Boston, is going to make an effort to have the route of the Glidden tour lengthened out so as to include Boston. President L. R. Speare, of the club, is vice-president of the A. A. A. and he has been appealed to by the members to try and bring this about.

TWO NEW SHOW DATES

A. L. A. M. Names October 31 to November 7—Chicago, November 30 to December 7

New York, March 26—Radical changes, as expected, have been made in the national show fall campaign and the next big exhibitions will be held much earlier than ever before. In fact, the first of the shows at which will be displayed the 1908 models will be held a month earlier than was the independent effort last December—about the same time as the French salon. Announcement to this effect was made today when the Association of Licensed Automobile Manufacturers gave out that its next show will be held in Madison Square garden the week of October 31-November 7, instead of as usual in the middle of January. There also is talk of extending the show into a 10-day affair. Also it is possible a show will be held for the exhibition of foreign cars after the first of the year. This A. L. A. M. announcement was preceded a few days by a statement from the National Association of Automobile Manufacturers that the Chicago show will be held in the Coliseum and First regiment armory the week of November 30-December 7.

Another departure the A. L. A. M. people have taken is in regard to the opening day. Instead of throwing open the doors of the garden on a Saturday night and closing the following Saturday night, the next exhibition will begin on a Thursday and end the same day the week following. Chicago, however, will stick to the Saturday proposition just as it has since its inception. The announcement regarding the Chicago show as made by Manager Miles is as follows:

"The eighth annual national show at Chicago will be held at the Coliseum and First Regiment armory, November 30 to December 7, as usual under the auspices of the National Association of Automobile Manufacturers. As was the case in February the Chicago show will be the only truly national event of the year, for it will be the only one which will bring together all makes of cars, regardless of the affiliation of their makers with any other association. The early date has been selected only after careful consideration. There are a great many people in the trade who still believe that February, or even a later date, is the proper time for the show, but the expression of a desire for an early date has been so general that it has been deemed fair to early show advocates to give it a trial. The New York shows are to be held late in October or early in November, so that there will be the usual interval between New York and Chicago. The request made by the Chicago Automobile Dealers' Association was also an important factor in determining the date. It is probable that the allotment of space will be made about the first of September, though an earlier date may be selected."

It is more than likely that Alfred Reeves, general manager of the A. M. C. M. A., who is expected back from his western trip on Thursday, will have sounded leading members of the independent association on the show date question. Before his departure he intimated that his association might not be averse to having the Grand Central palace exhibition follow the Madison Square garden show in November instead of antedating it by an October display.

TRADE INTERESTS CLASH

New York, March 23—Seldenites and independents have locked horns and are hurling accusations and innuendoes at one another in the public prints through the medium of statements from their respective publicity bureaus. The incidental bone of contention is the suit brought by the trustees of the bankrupt Searchmont Automobile Co. for an accounting by the licensed asosciation in the matter of assets and revenues, to which the plaintiff lays claim to a share. The first gun was fired by the American Motor Car Manufacturers' Association on Thursday in a statement in which it said: "Argument was heard today in part 1, special term, in the supreme court, on a motion to punish the officers of the Association of Licensed Automobile Manufacturers for contempt in refusing to obey an order of the court for an examination of the association's books when it became known that the organization was being sued. Some months ago the trustees of the bankrupt Searchmont Automobile Co., of Philadelphia brought suit in New York to recover the company's share in the association, and 2 weeks ago an order was granted by Judge Leventritt, requiring the association to give an inspection of its books to the Searchmont trustees." On Friday the motion of the Searchmont trustees was denied by Judge Leventritt, of the New York supreme court, whereupon today the Licensed Association of Automobile Manufacturers issued a statement claiming the action was instigated by the A. L. A. M.

NOW THE ROYAL A. C.

London, March 16—English motorists have been walking about with their noses very much in the air all week. That has not been caused by faulty carburation or fuel exhaust, but simply by the fact that the Hon. Arthur Stanley, M. P., had been able to announce at the annual dinner and general meeting of the Automobile Club of Great Britain that King Edward had graciously permitted the title of the organization to be amended under his patronage so that it will in future be known as the Royal Automobile Club. The club has about 3,000 members and an annual income of over $110,000. The dues probably will be raised to $50 a year.

THE READERS' CLEARING HOUSE

INFORMATION ON DESIGN

Pittsburg, Pa.—Editor Motor Age—What is the largest diameter of flywheel I can use on a two-cycle 4-inch bore by 3½ stroke one-cylinder motor and attain a speed of 1,200 to 1,500 revolutions per minute? Also give width and thickness of rim. Will a cast bronze square connecting rod, cored out hollow, be as light as drop forged rod of regular pattern, and what will be the necessary size and thickness of walls?—A. E. Gils.

Any diameter up to about 18 or 20 inches will be safe at a speed of 1,500 revolutions per minute. The proper width and thickness of a rim will depend altogether on the diameter chosen, and the use to which the motor is to be put. With these data given suitable dimensions could be supplied. A bronze connecting rod of the form proposed will not be so light as a drop forged rod, but it will not be impossible. The following dimensions will be safe for the small end of the rod: Outside of square, 1¼ by 1⅛ inches; inside of square, ⅞ by ¾ inches. At the large end the dimensions could be 1½ inches instead of 1¼, and 1⅛ inches instead of ⅞. The larger dimension should be in line with the plane of revolution, or, in other words, at right angles to the shaft. The tapering sides of the rod may be cored full of holes from ⅝ to ¾ inch in diameter. A simpler design would be the I-beam section, which could have the same outside dimensions and thickness of web and flanges.

NEVER HAD REVERSE

Pittsburg, Pa.—Editor Motor Age—I have traded for a de Dion motorette, which I judge to be 6 or 7 years old. It seems to be in good order, but I can't find a way to reverse it. Were these machines made without a reverse? If not, can you help me locate it?—F. W. Hadden.

Nearly all of the 3½-horsepower de Dion motorettes were made without reversing mechanism, and a large number of the 5-horsepower motorettes also. In the machines provided with reversing mechanism the reverse is operated by a pedal.

CORRECT SIZE OF TIRES

Jackson, Mich.—Editor Motor Age—Please tell me which I should use on my machine—32 by 3½-inch or 34 by 4-inch tires? The machine has a two-cylinder opposed motor under the hood, with cylinders 5¼ by 5-inch. The machine is driven by a shaft and is geared 3½ to 1, weighing about 2,300 pounds actual weight. If larger wheels and tires are better, why are they not more used—because of cost merely?—L. C. B.

You will undoubtedly get longer service from the 4-inch than from the 3½-inch tires. About the best reason that can be given for the frequent use of uneconomically small tires is that manufacturers of cars do not wish to raise the selling prices of their machines by the amount that would be necessary to put on tires large enough to give good service.

ADJUSTING RADIUS RODS

Coldwater, Mich.—Editor Motor Age—Kindly publish in the columns of the Readers' Clearing House what is the best way to line up the rear axle on a car on which, by repairs to the radius rods, all traces of former adjustment have been lost.—T. H. B.

If it is definitely known that the brackets carrying the front ends of the radius rods are exactly oposite each other, all that is necessary is to measure the length of the radius rods from center to center of the eyes at their ends. If not sure of these brackets, measure from some central point, as near the front end of the motor as convenient, to two similar points on the rear axle, such as the spring seats.

NEW RINGS NEEDED

Chicago, Ill.—Editor Motor Age—One of the cylinders of my four-cylinder motor is 3-1,000 inch from being exactly round, by wear, and loses a great deal of compression. Kindly inform me if new piston rings well lubricated will in time fill up space and make compression good.—A Subscriber.

Probably the wear of the cylinder has resulted in the rings being slightly open instead of closing perfectly at the split. For this reason better results will be obtained from new rings, and if the rings are not too stiff they may accommodate themselves to the shape of the cylinder. In this way sufficiently good results may be had for another season or two, after which the cylinders may need regrinding.

FLORIDA MEET SUGGESTIONS

New York—Editor Motor Age—The lack of interest in and failure of the Florida meets during the past 2 years have been frequently discussed. As manager of the Fiat team and because of a great interest in the racing game, I beg to make the following suggestions relative to the conduct of future Florida meets:

1—Events to be in such order that the longest race, at least 150 miles, should take place the first day of meet, and the next shorter distances to follow in accordance with distance. Cars not showing an average speed of at least 60 miles an hour for at least 100 miles in the long race should not be eligible for the sprint events, which means from 1 kilometer to 5 miles.

2—A system of raising the necessary funds to conduct the meet without placing all of the burden upon the manufacturers or agents in the shape of entry fees.

3—A committee of one of the leading automobile bodies should discuss with the transportation companies and the hotel companies for special favored rates for manufacturers and agents sending cars or teams to participate. This is in view of the fact that the rates of both are not far in excess of the normal rates in vogue in the north.

4—When trophies are advertised in the entry list they should at least come up to the standard mentioned therein, and not expect contestants, after incurring heavy expense, to be satisfied with cheap and unattractive trophies in which they can take no pride.

5—A competent board of officials, having a thorough knowledge of the racing rules of the A. A. A., to guarantee that such rules will be properly enforced, even though such enforcements be to the detriment of sensational performances.

6—Definite ruling, at least 90 days before the meet, as to what construction of cars and what set of rules are to be maintained and what are to be inapplicable.

7—Proper facilities must be arranged, sufficiently in advance, either by the promoters or the association having the meet in charge, for the transfer of machines and other freight at the terminus of the steamship or railroad line, to avoid excessive delays and overcharges that have been practiced in the past.

8—A competent transportation committee should be appointed composed of members, if possible, of similar committees of the A. L. A. M. and the A. M. C. M. A. Said committee shall have nothing whatever to do with other duties in connection with the conduct of the meet.

9—The race should be held at a later date than heretofore, with regard to the desires of the hotel management. My suggestion would be some time in February.

10—Lastly, and most important of all, the above suggestions should be acted upon immediately and a vigorous campaign inaugurated in the press and through other means with a view to convincing the public, at an early date that the Florida meet for 1908 is to be a success and not a fiasco.

E. R. Hollander.

KEEPING BRAKES CLEAN

Cincinnati, O.—Editor Motor Age—I would like a little information through the columns of the Readers' Clearing House. Oil from the differential case—I use part oil and part grease—works through the rear axle housing and gets on the brake drums. I have to clean the latter almost every day and would like to know how to avoid this trouble.—John Y. Noble.

Enclosed metal-to-metal rear brakes of live axle cars are easily put out of commission by surplus oil working into them from the differential case. A simple remedy is to drill small drain holes in the bottom of the axle tube, where they will catch the oil traveling along the tube before it reaches the brake shoes. Regard must be had to the axle bearings, if any, which the oil is intended to feed, as for example the bearings next to the wheels when the latter are keyed to the live shafts instead of running on the outside of the tubes.

IOWA MOTOR CAR LAWS

Colorado Junction, Ia.—Editor Motor Age—Please inform me about the laws in this state relating to motor cars on public highways and who to apply to for license numbers.—Iowan.

Write the secretary of state, at the state capital, for the latest laws and regulations.

MOTOR CAR SHOP KINKS

USE OF PARSONS WHITE BRASS

It is a singular characteristic of Parsons white brass that by some obscure molecular action it expands in service, with the result that the inside diameter of a solid bushing tends to grow smaller. This statement sounds absolutely incredible, but it is vouched for by a shop man of long experience who has used this metal with excellent success in a number of cars and in other machinery as well. A solid bushing of any other material may be fitted within a thousandth of an inch of the shaft size if the shaft has been ground truly circular, but if a white brass bushing be fitted anywhere near so close it will contract and seize the shaft. This action does not appear to take place when the shaft is running, but shortly after it has stopped. It does not appear to affect the outside diameter of the bushing, which remains a fit in its seat. The shaft itself is not damaged by this static seizure, but it is sometimes necessary to draw the bushing off with a puller. The remedy is to fit the bushing quite loosely in the first instance, the suggested allowance being about 1-100 inch per inch of shaft diameter. This does not apply to split bushings, which may be fitted closer. It seems possible that expansion and contraction from the heat of running may be in some way involved, though this by no means explains the whole phenomena.

REPAIRING A BODY

A damaged panel in a straight line tonneau can easily be repaired by covering it with a sheet of aluminum about 1-20 inch in thickness. This applies to practically any panel in a wood body, and it is seldom or never necessary to do anything but simply bend the aluminum sheet to shape and attach it carefully near the edges of the panel by countersunk wood screws. The slight thickening of the panel is not noticeable and the job is very much cheaper than putting in a new wood panel would be.

CHAIN AND BRAKE ADJUSTMENT

A car with full-elliptic springs cannot have the side chains adjusted so tight as one with semi-elliptic springs, on account of the greater vertical play of the former type of spring. If the chains be adjusted with the tonneau empty, and the car be taken out on a rough road with a full load of passengers, the rise of the rear axle relatively to the body and the sprocket pinion will draw the slack side of the chain tight, and in going over rough places the chains are very liable to snap. A similar precaution is necessary when adjusting the emergency brakes, except that the rods or cables operating these tighten on the rebound instead of the compression of the spring. It is even possible to adjust these brakes so closely when the rear axle is jacked up from the floor that the brakes will take hold of themselves when the axle is let down; and inexperienced drivers who have adjusted their brakes too tight have often been mystified by their spontaneously seizing on the rebound after passing a thank-e-ma'am.

REFITTING SHAFT BEARINGS

If a crankcase with plain bearings is neglected until the bearings are badly worn or cut, the shafts are thrown out of line, and it necessarily follows that the teeth of the gears themselves are in consequence worn unevenly. The question then arises whether it is better in refitting to restore the shafts to their original positions or to jockey the bushings so as to leave the shafts in about the positions they have worn for themselves. In the former case the result is nearly certain to follow that the gear teeth make contact with each other at one end only instead of clear across, and this is liable to break the teeth. The precise answer will best be determined by the conditions of the particular case. If the gears are wide and the teeth small, it is by all means best to leave the shafts as nearly as possible in the positions they have worn for themselves and simply adjust the bushings to take up the wear. The success with which this is done may be determined by rubbing the teeth of one of the gears with chalk —if it is rough—or with red lead and oil if it is worn smooth. The gears are then run together and the width of contact observed by the transfer of chalk or red lead to the second gear. If, on the other hand, the gears are narrow and of coarse pitch it is altogether probable that the teeth are so designed as to stand the concentration of the load at one end, and in this case it will be better to bring the shafts to their first positions and trust the gear teeth to even themselves by further wear. In the case of bevel gears, which usually have much wider faces than spur gears, it is almost always best to keep the shafts in the positions they have worn for themselves, and to test the tooth contact very carefully as above described, otherwise there is always danger of the load coming at the small end of the tooth.

THINGS APT TO LOOSEN

There are certain things which the conscientious repair man will investigate on every car which comes into his shop for repairs, even if he has received no orders from the owner to look into them. One of these is the condition of the engine supports, in case the engine rests directly on the mainframe instead of on a subframe. Any sort of a mainframe, no matter how stiffly braced, is in reality nothing but a spring, and the weaving on rough roads is certain sooner or later to loosen the bolts attaching the crankcase wings to the mainframe, especially if the ordinary four-point suspension is used. The average car owner does not realize this, and his engine may get very loose indeed before he discovers it. When once it begins to loosen it takes but a short time for the bolts to shear, to strip their nuts, or to enlarge the holes in the side frames to a dangerous extent. Another thing even more deserving of scrutiny is the steering gear. Steering column brackets may be supported in several ways, of which some are mechanical and some are not. A form of support sure to give trouble is that in which the bracket is bolted partly to the rear wing of the crankcase—when this is bolted directly to the side frame—and partly to the adjacent side frame itself. The inevitable "go and come" between the engine and the frame will loosen any bolts that can be used, no matter how carefully they are fitted or how thoroughly they are case-hardened. In many cases it may be impossible to more than temporize by reaming out the holes and putting in new bolts, and if this is not neglected too long it is possible in this way to keep the steering gear in workable condition till the car wears out. In case the dashboard is rigidly supported by the mainframe it may be possible to take out the bolts attaching the steering column bracket to the engine or to the side frame —either will do—and steady the column by a special socket fitted to the dashboard as proposed in Shop Kinks of January 24. As the column does not need to be supported with great rigidity by the dashboard, it will accommodate itself to springing when thus arranged better than when bolted rigidly to the engine and to the side frame. In addition to the above it is well to go over the joints, etc., of the steering gear and make sure that no nuts are loose or cotter pins missing.

WATCH THE OIL FEED

When a number of oil pipes are supplied from a sight feed lubricator on the dash, it is not a bad plan to mark each drip plainly with the number of drops per minute it should deliver. This information may be taken from the maker's instructions, remembering that the front and rear bearings of the motor take more oil than the intermediate bearings, and remembering that the gearcase needs only a little oil, and the clutch only one or two drops a minute. Naturally the information thus conveyed will be subject to modification according to the grade and body of the oil used.

MOTOR CAR DEVELOPMENT

HERE follow the appetizing morsels that Louis P. Mooers has considered worthy of a place in the 1907 Moon car as manufactured for its second year by the Moon Motor Car Co., St. Louis, Mo.: Mainframe upswept in front of the rear axle; full-elliptic rear springs; arched back axles, giving the wheels the same camber as the front wheels; overhead camshaft; compound cams—one sufficing for the intake and exhaust valve for each cylinder; valves almost vertical in the cylinder heads; multiple ring clutch running in oil;

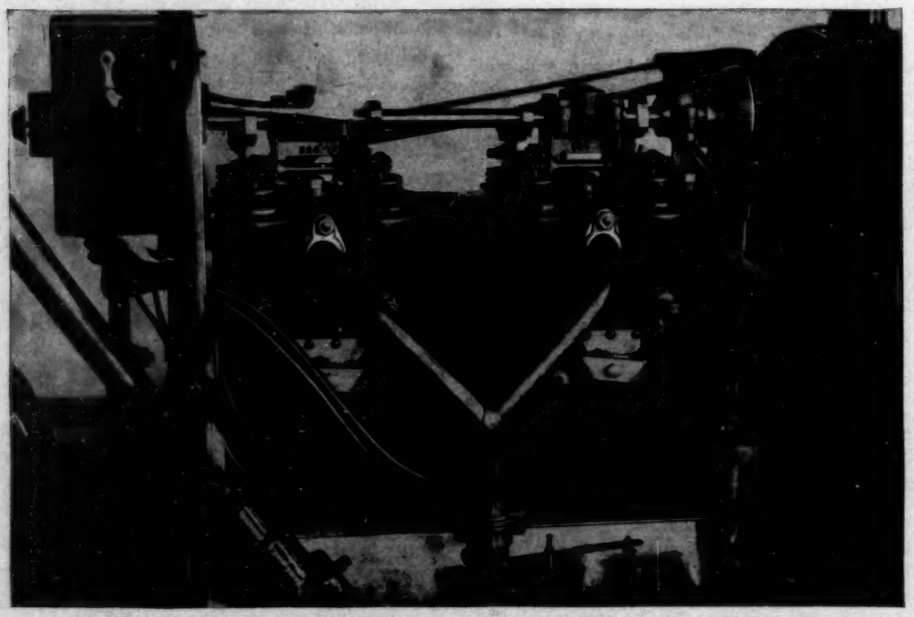
PLATES IN MOON DISK CLUTCH

four-speed and reverse selective gearset; internal and external brakes on the rear hubs; radiator hung in the rear of the front axle; and such conventionalities as shaft-drive, multiple-feed lubricator, jump spark ignition from batteries, and all the features of a modern five and seven-passenger car. Although in the selection of many of these he has almost strayed from the beaten paths of custom and what many consider motor rectitude, yet a scrutiny reveals all of them to be tried constructions, if not well known at home then acknowledged abroad. The designer has in this menu card made a few selections not widely followed in America. He uses a few features now coming in for general adoption and he uses several that are now considered part and parcel of recognized high art in motor car building. The upswept frame has two or three other American devotees and boasts of a large clientele abroad. Elliptic springs in the rear have received the lion's share of attention this season by makers throughout the country. The arched rear axle has been known since the days of Mooers' association with the Peerless company and has a limited European following. Welch and one or two other makers have exploited the overhead camshaft and stick to it. Valves in the cylinder heads have been talking points with many makers since Dugald Clark declared it is the only place for them and since the 2-mile-a-minute Darracq with its valves so located set a world's mark on the Florida sands. One rocker arm for two valves was brought out on Fiat racing cars 2 years ago and since then has received recognition at the hands of Pope-Toledo and De Luxe makers. Multiple disk or ring clutches are on the forward march both here and abroad. Selective gearsets are acknowledged components of good cars and double rear hub brakes with equalizers are common 1907 style. Carrying the radiator in rear of the front axle is a chip from the Mercedes workshop.

MOON GOVERNOR AND CAMSHAFT DRIVE

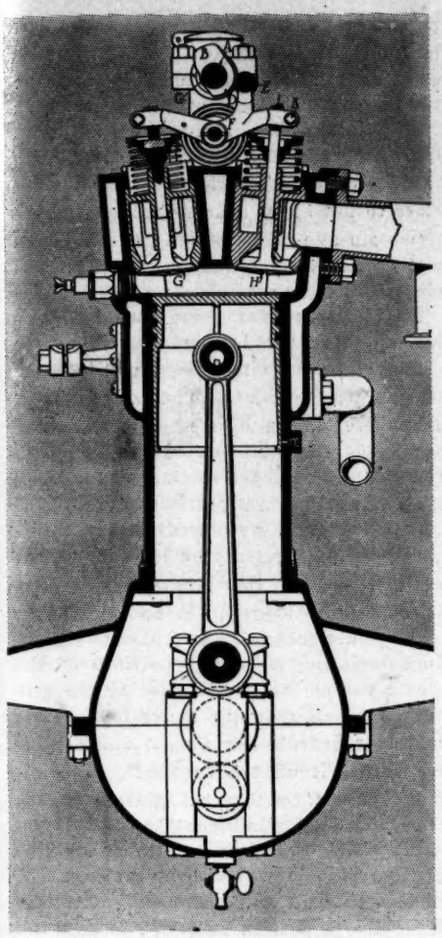
All told, then, the new Moon car, although looking at first glance to be a combination of new features, is but an aggregation of well-tried-out constructions, constructions, however, that are not old, that are not radical, but that have been tried and found successful. In this car Designer Mooers has forsaken old lines in the careful grouping of so many accepted designs; in fact, it is difficult to find another car combining so many of the late products of engineering skill and yet passing as a machine bereft of radicalism. In the car the designer has not shown exceptional creative power, rather a careful marshaling of good ideas; true, several features are new in detail, but the principles have been worked out by others. The language of many visitors who beheld the car's debut at the December show in New York, "Where can you find so many good things for the price?" epitomizes the aim desired and result accomplished in the Moon car for this year.

Compared with its last year's machine the present product of the Moon company officially designated model C is a much more mature product. Last year the forty-five or fifty cars manufactured by the company were fitted with Rutenber motors; this year the generation of power is entrusted to the 30-35-horsepower four-



RIGHT SIDE MOON MOTOR, SHOWING VALVES AND PIPING

MOON CAR 30-35 HORSEPOWER



END SECTION OF MOON MOTOR

cylinder motor of the company's manufacture, the cylinder dimensions of which are 4½-inch bore and stroke. The wheelbase of the car, measuring 110 inches, exceeds that of 1 year ago by 4 inches. Instead of a five-passenger body the buyer can secure either five or seven-passenger styles and many other details show the general growth of the past 12 months.

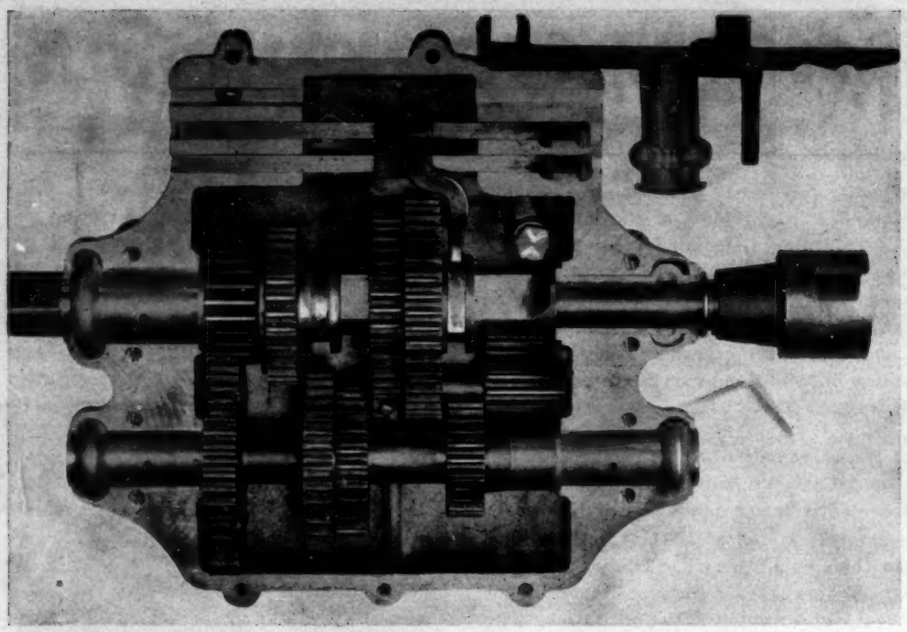
The problem wrestled with in the motor and one dear to the heart of the designer is that of placing the valves in the cylinder heads and opening them by a camshaft carried on the heads. To accomplish this the accepted practice of casting cylinders in pairs with all parts integral has been followed, but the cylinder-pair casting is considerably enlarged at the head, as can be noted by the end section shown herewith. The total width of the cylinder casting from the outside of the waterjacket on one side to that on the other side is 6½ inches opposite the cylinder bore, but at the top of the casting this measurement is increased to 8½ inches which is caused by slight expansions at each side for receiving the valve cages, which cages, instead of being placed vertically in the head, incline outwards, giving the valve stem an inclination of between 8 and 10 degrees to the vertical. This throws the top of the valve stems 4¼ inches apart from center to center and thereby provides room between them for the use of one rocker arm for the opening of both valves, the exhaust on the right marked H and intake on the left marked G. Enlarging the cylinder head 2 inches also provides cooling space for the valve cages and water spaces which appear in the sectional view. Between the valve cages is a V-shaped water space almost 3 inches in height and varying in width from ½-inch at the base to approximately 1 inch at the top. Surrounding the outside of the valve cages are water spaces of the same height and ⅜-inch wide. This water space entirely surrounds all intake and exhaust valves, and cools the cages throughout their entire length. The water spaces surrounding the cylinders extend downward 4 inches, almost the entire length of the piston when at the top of the stroke, and have a width of almost ½ inch.

Having thus accomplished the cooling of the valves in the head as well as supplying valves of 1¾-inch diameter for intakes and exhausts, the designer next set about perfecting a simplified method of opening these valves without resorting to the long cumbrous push rods rising at each side of the cylinders and which generally have been considered indispensable when valves in the head are used. The manner in which Designer Mooers has accomplished this is answered in a couple of illustrations on these pages, one showing the end section of the motor, the other a portion of the camshaft and top of one pair of cylinder castings. Supported along the top of the cylinders is a ⅞-inch camshaft A carrying four integral cams which suffice for opening the eight valves, one cam opening the intake and exhaust valves for each cylinder. Directly beneath this is seen a peculiarly shaped rocker arm pivoted at its center and with arms resting on the intake and exhaust valve stems, a branch F curving upward and carrying roller E, which contacts with the cam. The construction of the cam, in order to accomplish the opening of the exhaust valve H and the intake valve G, is slightly compound. The major diameter portion B

MOON MULTIPLE DISK CLUTCH CASE

forces the roller E outward, thereby lowering that end of the rocker arm bearing on the valve stem H. The minimum diameter portion C allows the roller E to be pressed towards the camshaft A by means of a spiral spring surrounding the stud carrying the rocker arm and at which time the tension of this spring forces the left end of the rocker arm down, opening the intake valve G and thus overcoming the tension of the intake valve spring. The opening then of the exhaust valve is by

TOP VIEW MOON MOTOR, SHOWING VALVES AND CAMSHAFT



SELECTIVE GEARSET USED ON 1907 MOON CAR

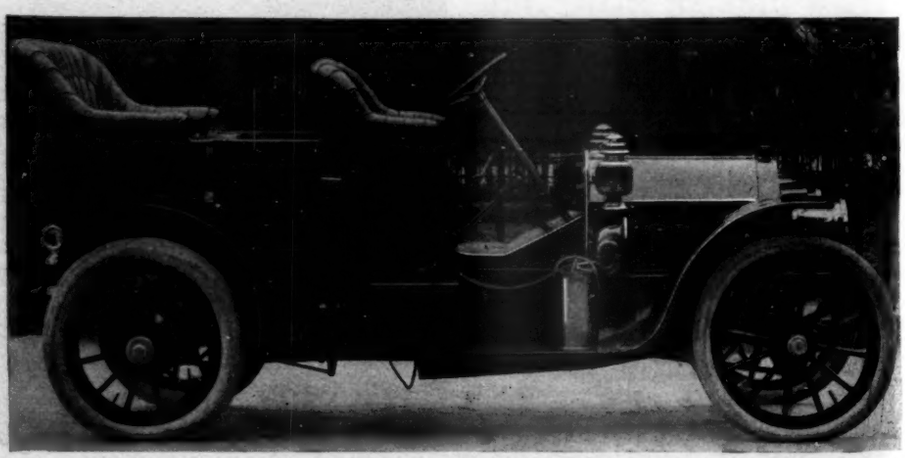
the direct action of the major cam portion B, but that of the intake valve is through the spiral spring referred to, which spring is permitted to come into action by the recessed portion C of the cam. Between the portions C and B on the cam is a medium diameter part E which is at present in contact with the roller E, at which time, as the illustration shows, both valves are closed, and at which time a compression stroke is being followed by an explosion stroke. To facilitate the timing of the valves the ends of the rocker arms are split and receive a set screw L and binding screw K, the former bearing upon the top of the valve stem and the latter serving solely as a lock nut to retain any adjustment of the former. Valves are nickel steel, formed with heads and stems integral. The sectional illustration shows that the stems are of double diameter, that portion adjacent to the head being slightly larger than the upper part. Valve cages are a ground fit and at their lower ends taper and rest upon a correspondingly tapered shoulder in the head opening. A threaded cap retains them in position and the washer holding the top of the valve spring is secured by key passing through the valve stem.

Having accomplished the valve system it was an easy matter to decide upon the method of driving the overhead camshaft, preference being given that method of using a vertical shaft at the forward end of the motor, driving it by bevel gears off the crankshaft and using similar bevels for transforming the power to the camshaft. All of these gears are enclosed and revolve in oil. This construction gives two shafts other than the crankshaft as the sum total of motor shafting. In order to dispense with other shafts the timer is carried on the rear end of the camshaft which is continued backward through the dash, thus placing the timer in constant view of the driver. The vertical shaft at the forward end of the motor is used for two other functions—that of carrying the centrifugal governor weights which act upon the carbureter throttle and also driving through spur gears the centrifugal water pump placed immediately to the left of the shaft. In the illustration the large aluminum housing covering the pump shaft gears appears, and between it and the upper bevels is the governor. The housing for the pump gears can be lifted by hand when necessary.

Apart from these peculiarities of design the Moon motor is a very compact power plant and, as the sectional drawing shows, the crankcase contains nothing but the crankshaft which is a three-bearing forging with 1⅞-inch diameter for the bearings and 1½-inch diameter for the crank pins. Its three Parsons white bronze bearings are carried in the upper half of the case on which also are four lateral arms, two on each side, for taking the weight of the motor on the subframe of the car. Connecting rods are I-beam formings with marine type ends carrying babbitt bearing boxes. Instead of using a solid wrist pin, one of the hollow split variety is used, and which is retained in position by the expansion of it after it has been forced into position. Pistons made with flat tops are 5¼ inches in length and carry three eccentric ¼-inch compression rings close to the upper end and well above the wrist pin and below which pin the piston walls are recessed for the reduction of friction when reciprocating.

Nothing out of the ordinary has been attempted in the ignition system of the car, preference being given for a conventional jump spark scheme with current taken from a set of storage cells passed through a four-unit coil and delivered to the plugs through the medium of the timer located on the dash and already referred to. Spark plugs are placed horizontally in the cylinder sides at the left and immediately beneath the intake valves with wire supports secured to the side of the waterjacket for taking strain off the plugs. In lubricating the many portions of the motor wisdom appears in placing the multiple feed oiler on the motor base at the left rear beneath the bonnet and driving by wire belt off the camshaft. From it leads pass through sight glasses on the dash and deliver lubricant to the cylinder walls which is distributed throughout the circumference of the wall by grooves. The pistons take oil up from these grooves for their use, a portion of which is used for oiling the wrist pin. Other leads connect with the main bearings on the crankshaft and the overflow reaches the oil rings carried on the shaft, being fed by these through channels bored in the crank throws by centrifugal force to the lower connecting rod bearings. Owing to this positive system throughout the motor little dependence is placed on the use of a splash within the crankcase. The overhead camshaft is carried in three bearings, one in the center of the head in each cylinder pair and the other at the forward end, the bracket for which supports the bevels. Each of these bearings is lubricated through a large oiler with a hinged covering.

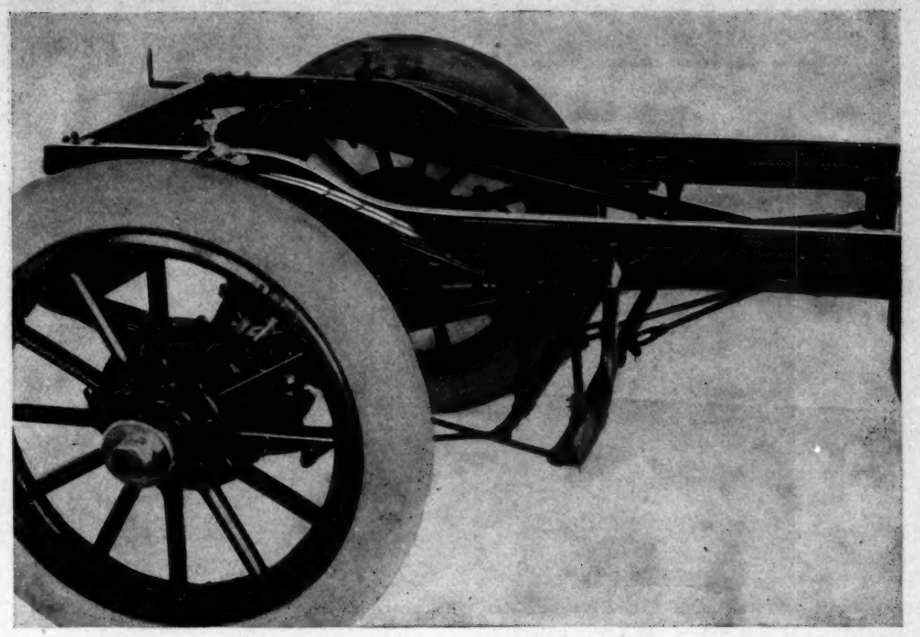
In place of the disk clutch last year con-



MOON 1907 FOUR-CYLINDER CAR

taining very few leather faced plates a multiple ring one is substituted. It contains fifty-three rings or disks—rings in reality as they have an external diameter of 5½ inches, and internal diameter of 4⅜ inches and are about ⅛ inch thick. One set is brass, the other steel and, as customary in all disk or ring clutches, one set is secured at its outer edge to the crankshaft and the other at its inner edge to the driveshaft which is shown in one of the illustrations on another page. This clutch is compact and entirely housed in a short cylindrical casing bolted to the flywheel, the diameter of the casing being such as to permit the flywheel spokes being made fan-shaped, thereby dispensing with the use of a cooling fan at the front of the engine. In order to quicken disengagement each steel disk or ring has slots cut in its sides and the corners of the metal sprung outward to bear against the adjacent disk. The clutch spring is enclosed, the only exposed part in connection with the whole device being the thrust collar with its arms for receiving the yoke from the clutch pedal. To facilitate dismounting of either the motor or gearset a double universal joint is placed in these parts of the car.

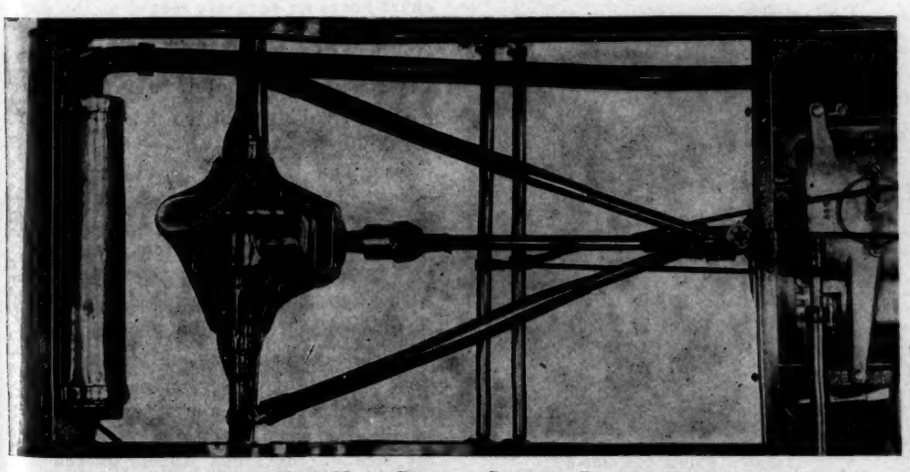
Changes in speed are through a selective gearset, giving four forward variations with direct drive through internal gears on the fourth speed. Manipulation of the sliding gears for the five speed changes is through a set of three shifter rods enclosed in a side extension of the gearcase and which shifter rods are actuated through a change speed lever at the right of the driver's seat which works in a three-slot quadrant, entrance to the reverse slot guarded by latch. On the squared mainshaft, as noted in the illustration, are two sliding sets, one consisting of a single gear, the other of two gears. The third shifter rod operates the reverse idler which is moved into position and remains idle when not in use. Gears are of the ring type bolted to flanges formed integrally with the shaft or sliding sleeves and all are made of special carbon steel case hardened. Both shafts are carried on long babbitt bearings provided with special oiling arrangements.



UP-SWEEP IN FRAME OF MOON CAR, SHOWING FULL ELLIPTIC SPRINGS

The gearset is carried on the subframe piece through two side arms on the right and two on the left. The housing itself is a two-part aluminum casting, the division between them being in the same plane as the center of the bearings for the main and countershafts. In the top of the case is a small inspection plate secured by cross yoke. Communication with the back axle is through a propeller shaft carrying forward and rear universal joints and acting in conjunction with this propeller shaft is a triangular brace system shown on this page and in which brace rods hinged through vertical pins with the axle casing converge and unite, forming an apex in rear of a cross piece of the frame immediately back of the transmission case. This apex carries a globe ending which is received in a socket supported on the cross piece of the frame. This supporting system permits of the use of full elliptic springs in rear and obviates the necessity of side strut rods or a torsion rod paralleling the propeller shaft. The rear axle is of the floating type with the road wheels carried on ball races supported on the outer ends of the axle tubes. Featured in this axle is the use of a universal joint in the driveshaft at each side of the differential, the presence of which is to permit of the axle being arched 2½ degrees so that the rear wheels are given a camber the same as that in use on the front wheels. The differential housing is a steel casing; axle sleeves are brazed into these and the spring seatings are loosely mounted on the axle sleeves.

The Moon running gear introduces a few differences from the ordinary construction, one of which appears in the framework, the side pieces of which are made parallel from end to end, but upswept 3½ inches over the rear axle which permits of the use of elliptic springs and affords ample room for the vibration of the springs. The subframe is used for supporting the motor and gearbox. The front springs are semi-elliptics 36 inches in length with six leaves 1¾ inches wide and the rear elliptics are 28 inches in length, have 2-inch leaves and support the frame through revoluble stub axles carried on the frame. The front axle is an I-beam forging with Elliott steering knuckles, the only unconventional portion of it being the single clip holding the front spring to the axle which passes directly through the center of the axle and takes nut with cotter pin on the lower end. Braking is through internal and external members operating on the same drum on the rear wheels, the pedal brakes being contracting fiber-lined bands and the lever-operated emergencies assuming the form of fiber lined expanding shoes, the application of which disengages the clutch. Both sets are brought into action through the use of long equalizers carried transversely beneath the frame. Steering is through a screw and nut gear; spark and throttle control are above the steering wheel and the 34-inch wheels carry 3½-inch tires in front and 4-inch



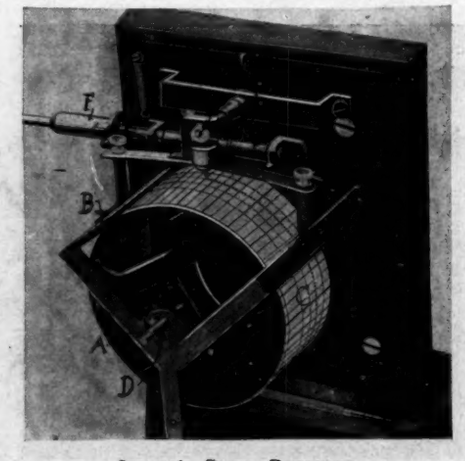
PLAN VIEW BACK HALF MOON CHASSIS, SHOWING DOUBLE TORSION RODS

GEARLESS FOUR-CYLINDER CAR, DESCRIBED IN LAST WEEK'S ISSUE

pneumatic in the rear. The Moon body is designed on the easy curve principle which appears in the round on the back of the tonneau seat, the rear body corners, tonneau doors, and front and rear fenders. The dash is a straight wood piece carrying the coil and sight feeds.

RECORDS SPEED ON CHART

The trend of invention in speed and distance-measuring instruments during the past season emphasizes the great desire in motorists to know how fast they travel as well as the distances covered. While speed-measuring and distance-measuring instruments have received the major portion of attention a new instrument properly known as the speedograph, although not so designated, has come to the front. The speedograph records on a paper chart the distances traveled every 24 hours and indicates the speed made for every minute and hour of that time. A new chart is needed for each 24 hours and at the end of each day the old chart can be put aside for reference or other uses. The latest American speedograph is the invention of C. F. Iszard, 241 Hansberry street, Germantown, Philadelphia, Pa. The instrument is small, measuring 5 inches high, 4 inches wide and 2 inches thick. These dimensions make it suitable for carrying on the dash of any car. A good conception of the speedograph may be obtained from the accompanying illustration. Before entering upon an analysis of the instrument the reader must bear in mind that the instrument is of a dual nature: First is a large circular drum on the surface of which is fixed the recording chart marked C, which is revolved by a clock mechanism which makes this drum complete a revolution every 6 hours, or four revolutions per day. The second part of the instrument is the recording needle, or pen, which makes a dot on the chart for every mile traveled by the car, this pen seen at the top of the chart and pressed down upon the chart by a cam H is operated from the front wheel of the car by a flexible shaft, part of which is seen at F, this shaft being identical with those used in the average speed-measuring machines. Passing to a detail of the two systems in use in the speedograph the chart merits first attention. It is a paper slip 12 inches long and 1 inch wide, divided by three longitudinal lines into four equal divisions. Each division receives the record for six hours at the end of which time the drum moves laterally ¼ inch so that for the following 6 hours the recording dots will be in the second division, and so on for the third and fourth divisions. In the illustration the pen is shown making a series of dots in the second 6 hours. Each of the four divisions of the chart are divided into hour spaces, each hour space being 2 inches long and ¼ inch wide. The hour spaces are subdivided into half-hours, quarter-hours and 5-minute spaces. Each square then on the chart represents a 5-minute space and the number of dots in each square tells how many miles the car traveled in 5 minutes. The chart C is secured to the outer surface of a drum B within which is a set of clock works mounted on the fixed shaft A so that the works revolve with the drum B and chart C. On the end of the fixed shaft A is a fine spiral D which moves the drum laterally each revolution so as to have the needle register in the four divisions already referred to. On the end of the flexible shaft is a fine spiral G which meshes with a finely-toothed wheel G. The relation between the spiral and the teeth of this gear are such that the wheel G completes a revolution each hour. An examination shows the wheel to be divided into one-eighth, one-quarter, one-half, three-quarters and other divisions so that an exact calculation is possible. On the outer end of the shaft carrying the gear G is a cam piece H which bears upon the top of the cup-shaped ink well immediately beneath it and in the bottom of the ink well is the pen for making the dots on the disk. Thus with each revolution of the wheel G, or each mile, the cam H forces the pen upon the chart, making a dot. The pen is a non-corrosive metal and the ink receptacle has accommodation for a week's supply of writing fluid. As seen, the pen is carried on a steel band which raises it the moment the cam H has passed and the spring prevents false record dots which might be caused by excessive vibration of the machine. As to interpreting the record, the task is not unlike that of deciphering a cable or telegraph ribbon. When the chart is removed from the drum after 24 hours of use it will have four almost parallel rows of dots, each of which rows tells the story of 6 hours of the day. To find the total miles traveled the dots must be counted, the sum total being the number of miles covered. The speed is reckoned by counting the number of dots in a 5-minute space, thus five dots in a 5-minute space would mean 60 mile an hour, four dots would mean 48 miles an hour and three dots 36 miles. A long white space free of dots for 1 hour would indicate the length of noon hour and other spaces free from dots would show the car to be standing idle. An instrument like the speedograph is specially suited for taximeter cabs or livery work in that the chart keeps an accurate record of the day's travel. By the use of the speedograph the owner has a record of what his driver has done every minute of the day and in case of troubles with the police regarding breaking speed regulations the chart is indisputable proof. The instrument is housed in a compact box, the lid of which appears in the illustration supporting the entire mechanism. The drum B can be set at any desired point whenever the driver wishes by means of a small clamp, so that in case of a driver using his machine but a few hours each day he can make the same chart provide for several days. The gear wheel G can be made to exactly record a mile for each revolution regardless of the size of the front wheels of the car.



ISZARD'S SPEED RECORDER

All points considered the instrument is stoutly made and so designed as to be put on any car with as much ease as the putting in place of a speedometer.

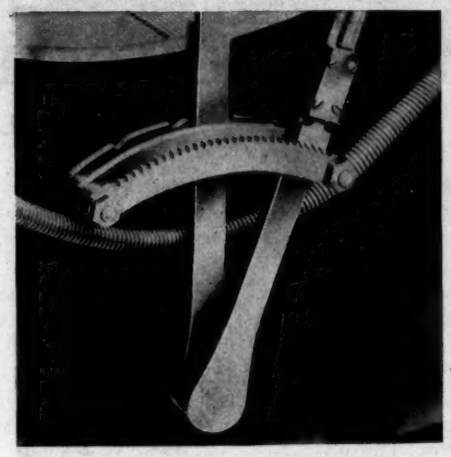
SIMPLIFIED QUADRANT

The Franklin company employs on its present cars a simplified form of quadrant in which the change speed lever operates. The cars have three forward speeds and a reverse with changes made on the progressive principle. The quadrant has five notches for receiving the latch on the gear lever. The illustration shows the lever in the neutral notch and the other notches A, B, C and D are for reverse, low, intermediate and high speed. It will be noted that all four notches are made with straight edges at the ends away from the neutral but curved edges at the ends adjacent to the neutral notch. The neutral notch has both edges curved. The object is apparent. With the curved ends it is possible to go out of neutral to intermediate or to drop from neutral to low without recourse to the latch. It is possible to go from any speed to neutral without use of the latch, but you cannot go from low to reverse, or intermediate to high without using it.

DISPLAY INGENUITY

Motor engineers devise some unique tests at times when a new model is placed on the road and when they wish to compare the results of practice with the deductions of theory. That was the case when the designers and engineers of the Thomas Flyer came to the question of which brakes they should use, contracting or expanding, for the hand lever. Theory was good as far as it went, but what they really wanted to know was which kind would actually hold the car best. H. J. Hass, superintendent of the company, finally hit on the plan. Two 1907 models were used. Both were fitted with foot brakes on the rear hubs of the contracting, leather to metal type. For the hand lever brakes, one was equipped with contracting leather to metal brakes on countershaft drums and the other with expanding metal-to-metal brakes in the interior of the rear hubs in such a manner that tension and area were the same on each and would, apparently, nave the same effect. A scale attached to the back of the front seats and to the hand levers of the two cars served to aid in equalizing the pressure. Both cars were then loaded with pig iron equalling the weight of seven persons, the seating capacity of the Flyers, run up a grade and turned around. Then the hand lever brakes on both were applied at the same tension. The car with the metal-to-metal expanding brakes reached the bottom of the 200-yard grade 54 seconds before the other. Other tests on straightaways demonstrated, it is said, that the contracting bands always stop the car more quickly and as a result the band brakes on the countershafts were adopted.

One of the minor changes made in the



FRANKLIN'S SIMPLIFIED QUADRANT

construction of the Thomas Flyer this year is the placing of the ratchet of the back stop safety device inside the rear hubs instead of on the outside rim. By this change of location the ratchet is protected from dust and mud which might tend to clog it.

ADDITION TO WAYNE LINE

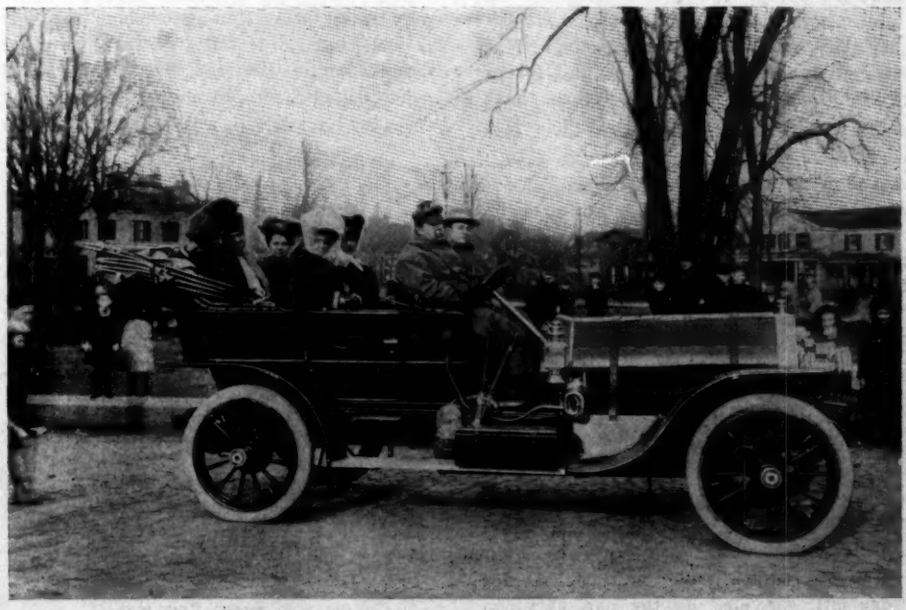
In keeping with the course pursued by the majority of American builders the Wayne Automobile Co. has added to its line of touring cars a three-passenger roadster, a machine using the model N chassis described in Motor Age recently. The motor is the company's 30-35-horsepower product with cylinders cast in pairs and having valves carried in pockets on the same side. The clutch is an expanding member. Drive between it and the gearbox, carried integrally with the differential on the back axle, is by cardan shaft. Speed variations are obtained on the selective principle and are limited to three forward and a single reverse. Double brakes are carried on the rear hubs. The body has conventional roadster lines and is made largely from steel and aluminum. Combined in its make-up are peculiarly arched front fenders rising from the front of a short running board at the side of the dash, folding rumble seat which can be removed when desired, well inclined steering pillar and deep flaring dash which continues rearward at the sides, forming the sides of the body at the ends of the footboard. The seats are low and placed immediately in front of the back axle.

MOTOR CAR LITERATURE

Christopher Columbus, embossed, adorns the cover of the catalogue of the Columbus Buggy Co., Columbus, O. Inside the Columbus electric, "The car supreme," is illustrated and described and the advantages of electric vehicles are told in concise terms.

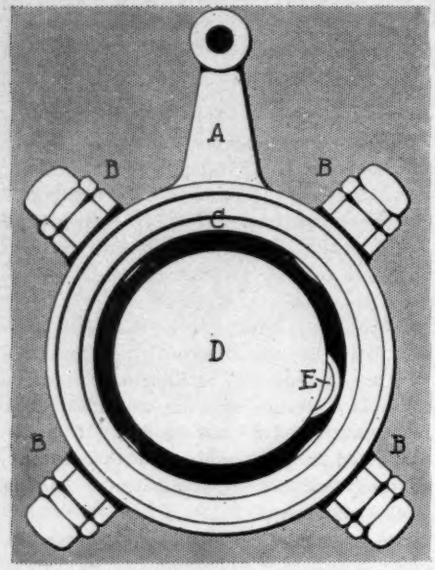
"From the Intake," is the title of a neat little booklet that is being circulated by the Aerocar Co., of Detroit. On the cover is a design showing an intake pipe from the model F touring car. It is disconnected from the motor and the contents of the book are supposed to be coming from the intake.

An attractive cover, a pretty frontispiece, a full-page collection of twenty-five car photographs, a dozen pages of cars and parts interspersed with brief descriptive matter and sixteen pages of detailed blueprints combine in making the Royal Tourist catalogue for this year one of the best yet out. The front cover, a color study, shows a large castle in the background with the foreground occupied by a curved road leading through the lawn with a car in the immediate foreground. The frontispiece is an effect in black and blue and the most interesting part of the car is the blue print study in which front hub, side of chassis, plan of chassis, vertical section of clutch, steering column, side of motor, end of motor, front of torsion rod, differential, carbureter, gearset, timer, rear axle, brakes, radius rods, ignition system and many other features are detailed.



GEARLESS SIX-CYLINDER CAR, DESCRIBED IN LAST WEEK'S ISSUE

DEVELOPMENT BRIEFS



SECTIONAL VIEW OF SINTZ TIMER

COMPACTNESS ITS FEATURE

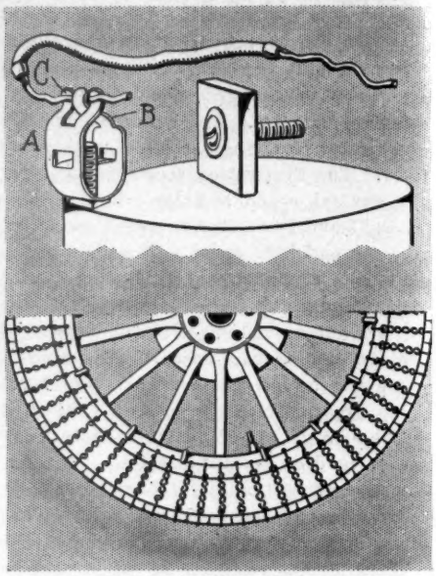
Manufactured by the Marine and Auto Specialty Co., Grand Rapids, Mich., the Sintz timer for two and four-cylinder motors, is built along those lines in which a roller is carried on the revolving shaft for making contact with the two or four stationary points connected with the wires. The timer is exceedingly compact throughout, being but 2⅜ inches in diameter. In the assembled view the four important parts of it are seen. First comes the machine-bronze casing A, in which are carried the four hardened steel stationary contacts B, which are pressed into the casing as well as through the fiber insulation C, which is seen within the casing. The revolving head D is a hardened steel piece keyed to the end of the shaft driving the commutator and having an enlarged flange portion at one end for carrying the brush E. Passing through this enlarged portion is a circular hole F for receiving the round portion G of the arm which carries the revolving wheel or brush E. Also seen in this enlarged part is a squared portion H, into which the squared head K of the brush sits, this preventing it from turning. The revolving brush is constantly pressed outward by small spiral spring S the majority of which is contained in a socket in the inner end of the brush holder, but enough of which remains outside of the socket to give a good steady outward pressure. The binding posts to which the wires in the coil are attached are castle nuts supplied with cotter pins. All parts of the timer are manufactured on special jigs so any part of one is interchangeable with the same part of another timer of the same type.

DOES AWAY WITH NUTS

Shown attached to the top of a dry cell is the battery connection manufactured by the Standard Battery Connection Co., 27 Copeland street, Roxbury, Mass. This connection consists of a metal strap A curved into circular form and with its ends further curved into hook shape, one end C with a double hook and the other B with a single hook. The single hook passes between the double hook and the presence of the wire holds them locked. The terminal screws onto the terminal on the dry cell and is held rigid thereon by cutting out a slip in opposite sides of the strap and bending them inward towards the threaded terminal until they lock in the threads. This dispenses with the use of nuts to work loose.

NEW WINTON MODEL

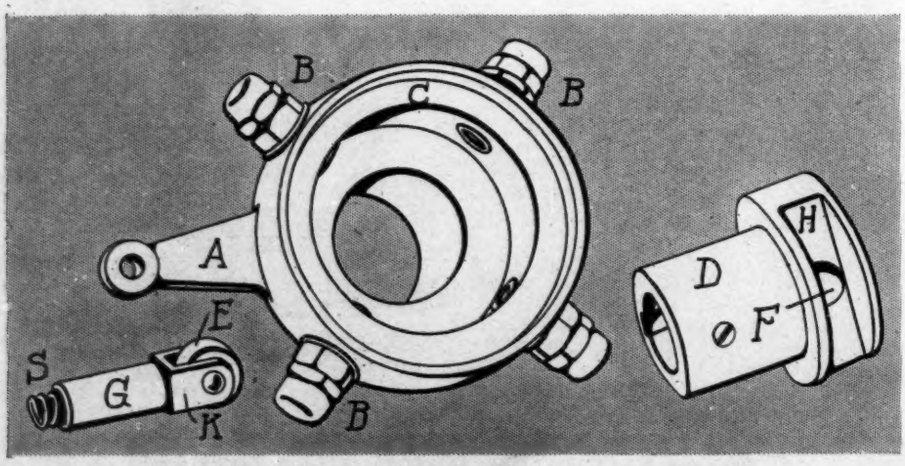
The report that the Winton company is building a six-cylinder car has been denied. However, with the selling season only fairly started, a new model for 1908 is well under way. Six of these cars are being completed at the Winton shops and soon will be put through the paces on Cleveland roads. It was decided this year to build six experimental cars of the same model in order to thoroughly try out the new ideas involved. This plan will show up any defects which may develop more thoroughly than where only two or three cars are built. Actual shop work on the new cars will start in the machine shop within the next few weeks.



STANDARD CONNECTION—PERFECT TIRE COVER

ARMORED AND NON-SKID

The Perfect Tire Co., Spirit Lake, Ia., is marketing its Perfect tire cover for pneumatics. This cover, besides forming an armor over the tread of the tire for the prevention of puncturing, also acts as a non-skid for the prevention of slipping. The armor portion consists of sixty metal plates arranged crosswise over the tire tread and practically covering it. Each plate is greater in length than the major width of the tread and is 2 inches in width, being formed in oval shape, so as to cover the entire tread. The plates are centrally arched to conform with the tire contour and the sixty plates are held together by an endless canvas belt which rests upon the tire tread, thereby eliminating any wear that might occur should the plates bear upon the rubber. Holding this plate armor to the tire is a set of chains, two chains for each plate. These chains attach to the ends of the plates and at their other ends link to a metal ring with a turnbuckle that lies close to the rim of the wheel. A cover weighs from 25 to 30 pounds, according to the size of the tire, and but a few minutes are needed to attach or detach a set. A value placed upon the side chains other than that of holding the armor in position is that they protect the side of the tires from wear when the wheels are traveling in ruts on hard roads.



SINTZ TIMER DISSEMBLED, SHOWING PRINCIPAL PARTS

CURRENT MOTOR CAR PATENTS

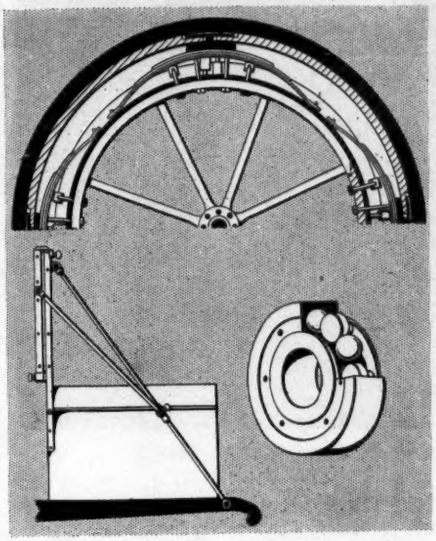
Annular Ball-Rolling Bearing, No. 847,487, dated March 19; to J. D. Maxwell, Tarrytown, N. Y.—This bearing has a striking resemblance to the Hess-Bright in that a series of balls are placed between two concentric rings grooved on their adjacent faces and in which grooves the balls run. The balls are inserted by placing the rings eccentrically to each other. Instead of separating the balls by spring spacers they are separated by rollers of the same diameter as the balls and which rollers are inserted edgewise between the rings of the bearing and when in are placed vertically. Each roller has an axis and the ends of this are supported in ring flanges which fill the space at the edges of the bearings between the outer and inner ring.

Folding Wind-Shield, No. 847,830, dated March 19; to E. Schildback, Elmhurst, Ill.—The lower half of this wind shield is mounted rigidly on top of the dash and supported by an angular rod from its top to the front ends of the side frame pieces of the car. In the top of the framework is a series of vertical holes or wells. The top half of the shield has on its lower surface a series of corresponding vertical pins for entering these holes, and attached to its sides is a pair of brace rods which, at their lower ends, are carried upon the brace rods for the lower half of the wind shield through a sliding union with set screws. When the upper half of the shield is not in use it is lifted slightly to free the pins from the holes in the lower half and then dropped in rear of the lower half and held there through curved hooks on its top frame, which engages with the holes in the top part of the lower frame, thus holding it securely.

Spring Rim, No. 847,926, dated March 19; to J. H. Fawkes, Detroit, Mich.—The wheel referred to herein carries two rims, one supported on the ends of the spokes and the other concentric with this and of larger diameter. The two rims are separated by a set of four leaf springs attached at their centers to the inside of the outer rim and distributed thereon at 90 degrees to one another. The free ends of these springs bear upon the outer surface of the inner rim, contracting with rollers on the rim. Side flanges are provided to prevent lateral displacement of the larger rim.

Angular Propeller Shaft, No. 847,914, dated March 19; to W. I. Crawford, St. Louis, Mo.—Instead of the propeller shaft connecting between the end of the crankshaft and the center of the rear axle, running longitudinally of the frame, it is mounted at an angle of approximately 15 degrees to the left which is caused by the peculiar style of transmission used. The crankshaft, continued considerably past the flywheel, carries a set of sliding gears keyed to it, each gear with a slightly beveled face. These gears are adapted to mesh with a corresponding series of gears mounted on the forward end of the propeller shaft. Arrangements are made for sliding the gears to obtain the different forward speeds in the reverse. The forward end of the propeller shaft, together with its gears, is supported in a framework carried on the continuation of the crankshaft.

FAWKES' SPRING RIM

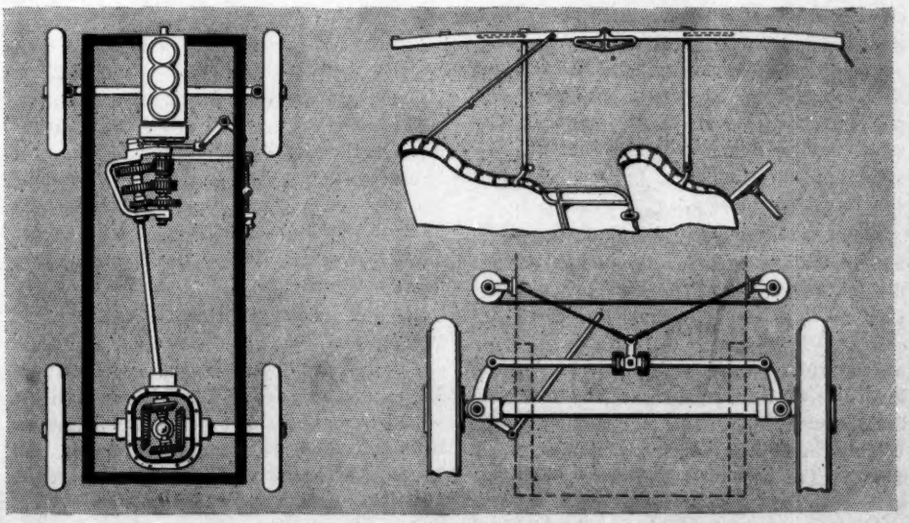


SCHILDBACK'S SHIELD MAXWELL'S BEARING

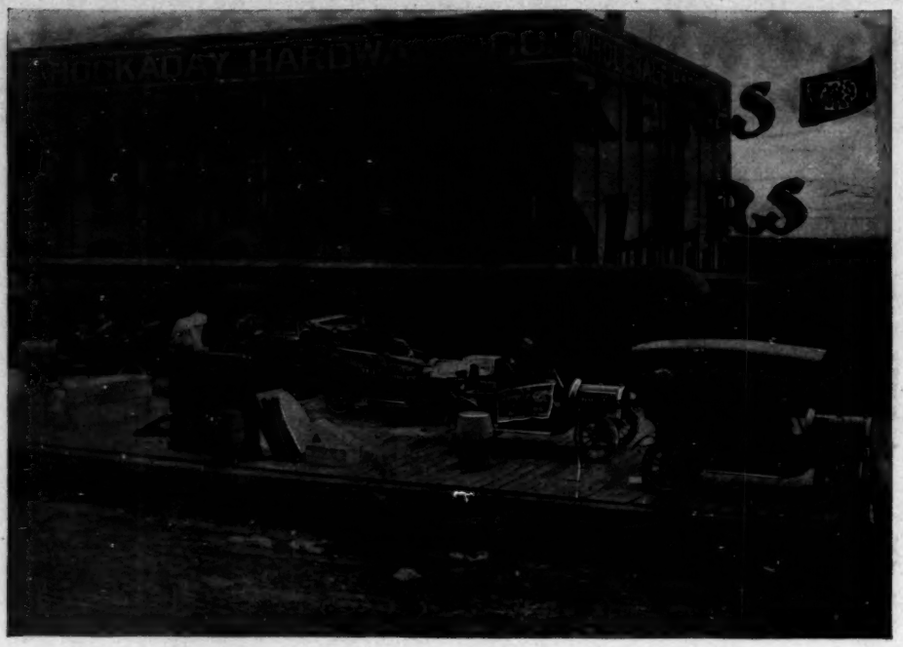
Ford Steering Gear, No. 847,405, dated March 19; to H. Ford, Detroit, Mich.—The Ford steering gear is on the top of the steering column immediately beneath the hub of the steering wheel instead of at the base of the column. The steering shaft has a socket in its upper end in which rests a stub shaft carrying the steering wheel. This stub shaft also has a bearing in the stationary tube enclosing the steering post. Carried on the stub shaft is a gear; carried on the steering shaft is another gear and interposed between these is a gear by means of which a different rate of motion is imparted to the steering shaft than that set up in the steering wheel.

Two-Part Top, No. 847,970, dated March 19; to J. M. Rebholz, Troy, O.—This motor car top intended for ordinary touring cars has the canopy portion resembling that of the ordinary folding top. It is made in front and rear halves hinged together at their adjacent sides. The forward half supported by a standard rising from brackets at the ends of the front seat, and detachably connected thereto, and the rear half similarly supported by brackets on the rear seat, with the standards pivotally connected with these brackets and a supplementary brace rod extending from the back of the seat to the top. The top of the standards are slidably mounted in a longitudinal groove in the framework of the tops. If desired only the rear half may be used, so as to form a sort of landaulet.

Swinging Headlights, No. 847,918, dated March 19; to W. H. Donaldson, Joliet, Ill.—The headlights are carried on the tops of vertical pillars at the side of the dash. On the bottoms of these pillars are pulleys over which pass a cable having connection with the center of the rod between the steering knuckles. With each movement of the steering knuckles to right or left there is a corresponding movement through the pulleys of the pillars carrying the headlights as well as the headlights themselves.



CRAWFORD'S ANGULAR SHAFT DRIVE REBHOLZ'S TOP DONALDSON'S HEADLIGHTS



RAMBLERS BEING UNLOADED FROM EXPRESS CARS AT WICHITA, KANSAS

Does Not Get Dragon—The Dragon Automobile Co. has decided not to build a factory at Columbus, Ind.

Big Darracqs Arrive—The first two of the six-cylinder Darracqs to arrive in this country have been received by the Darracq Motor Co.

Has Made Alterations—The Delaware Automobile Storage and Repair Co., of Wilmington, Del., has just finished extensive alterations in its plant. The repair shop now takes up the entire second floor. A power-driven elevator takes the cars up.

Morrison Company Moves—The A. E. Morrison Co., which handles the Oldsmobile and Stearns cars in Boston, moved into its new quarters at the corner of Massachusetts and Commonwealth avenues a few days ago. The company now has one of the finest salesrooms in the country, it is said.

Witherbee Interested—Having severed his connection with the Witherbee Igniter Co., Thomas S. Witherbee has organized the Witherbee Mfg. Co., of New York, and among the specialties the new concern will manufacture will be the Wright-Witherbee storage battery. The new company proposes locating its plant in Detroit, having made its plans for the construction of a modern factory of solid concrete construction.

Ships By Express—Owing to the shortage in freight cars for shipments, particularly to the west, Thomas B. Jeffery & Co. have resorted to the expedient of shipping by express in carload lots. A photograph recently taken shows a carload lot of five cars, four of model 21 and one model 27, as received by the Wichita Automobile Co. of Wichita, Kan. This is the second carload thus shipped to this company in the past 2 weeks. In addition to these five other carloads have been shipped in a space of a few weeks, one of which went to Buffalo and the balance west.

Matheson Six Coming—The Matheson Motor Car Co., of Wilkes Barre, Pa., announces that it will put out a six-cylinder car next season.

Will Not Make Cars—The creditors of the Harrison Wagon Co., of Grand Rapids, Mich., who recently took charge of the affairs of that concern, have decided to discontinue the manufacture of motor cars by that company.

MacWilliams Moves—A. F. MacWilliams, of New York, has gone to Boston to open the Darracq agency there. He has secured quarters at 171 Huntington avenue. The agency will be under the direction of the Darracq company of New York city.

Weston Opens a Branch—Frank F. Weston has established at 2230 Broadway a New York branch of the Detroit Motor Vehicle Co. In addition to making it a headquarters for the selling of Detroit cars he has established his own parts and accessories selling agency at the same place.

Increases Capital Stock—The corporation commission of Virginia has granted the National Electrical Supply Co., of Washington, D. C., permission to amend its charter by increasing its capital stock from $100,000 to $200,000. This concern is a wholesale and retail dealer in tires and accessories.

Dragon Testing Room—The Dragon Automobile Co. has instituted a special testing room at Philadelphia, where under the direction of a firm of metallurgic chemists of national repute extensive tests of metals and materials of all kinds will be carried forward. Entirely aside from this testing department will be an engine-testing room with manograph and other up-to-date devices and instruments which will be in operation before the first of the month, it is announced.

Ford's New Plant—Henry Ford on a recent visit to New York, stated that the new factory in contemplation for the Ford Motor Co. will have a capacity of 150 cars per day when it is in operation.

Succeeds Leavitt & Co.—The Motor Car Agencies Co. has taken over the business of J. W. Leavitt & Co., San Francisco, distributors for the Wayne in northern California.

Coakley Electric Recruit—John A. Coakley, well known as a sporting writer in Boston, has accepted a position with the Babcock Electric Co., of Buffalo. He begins his new duties there next week and will look after general publicity work and advertising.

Chalfant Makes Its Bow—A new car has made its appearance in Philadelphia—the Chalfant, 22-24-horsepower. A. G. Powell, who represented the Rambler in the Quaker City before Thomas B. Jeffery & Co. established a local branch, will represent the newcomer. It is made at Lenover, Pa.

Ask for Receiver—Application has been made for a receiver to wind up the affairs of the Johnson-Ingman Air Motor Co., of Cumberland, Md., incorporated with an authorized capital stock of $250,000 on October 10, 1902. The court ordered the company to show cause why a receiver should not be appointed. Members of the company are Wilbur H. Johnson, William A. Ingman, J. George Herman, John J. Howe and Charles H. Woolford, all of Cumberland.

New Dragon Garage—Plans have just been drawn by a Boston architect for a garage to be used by the Dragon company in the rear of its salesroom on Massachusetts avenue, Boston. The building will be two stories high and will not be used as a general storage, but rather a repair shop and garage for cars used in demonstrating. Vice-President Frank Corlew has sent the Golden Dragon to the Philadelphia factory to be overhauled preparatory to taking a long tour of the United States and Canada in it.

Makes Ferro Alloys—The Electric Metallurgical Co., with offices at 157 Michigan avenue, Chicago, and works at Niagara Falls, N. Y., incorporated some 6 months ago, has begun at Niagara Falls the manufacture of high grade ferro alloys—principally ferro vanadium, ferro tungstun and low carbon ferro chromium—and is putting in additional equipment for materially increasing its output. The Electro Metallurgical Co. has bought the works and business of the Willson Aluminum Co., at Kanawha Falls, W. Va., acquiring patents from this and other sources covering the manufacture of ferro chromium, ferro silicon and other ferro alloys. G. F. Price is general manager

of the Electro company and the concern also has an office at 79 Wall street, New York.

Will Build Motor Boats—The Matheson Co., of New York, is to go into motor boat building at an early day. A plant will be established near New York.

Becomes a Warnerite—M. J. Dobler, a veteran in the trade, recently with the late Michelin Products Selling Co., has joined the selling staff of the Warner Instrument Co.

New Baltimore Place Opens—Cassidy, Davy & Co., jobbers and manufacturers' agents, have opened their new salesrooms, 20 St. Paul street, Baltimore. In addition to carrying a full line of motor accessories they are the southern sales agents for Ajax tires.

Oriole Concern Moves—The Southern Automobile Co., of Baltimore, Md., has moved its garage and salesrooms from the Mount Royal garage, Maryland and Mount Royal avenues, to the new headquarters at 1200 Mount Royal avenue, corner of Dolphin street. The company has the agency for the Pierce Arrow.

New In Hoosierdom—Just in time for the first show and opening week Indianapolis has ever had, the Victor Automobile Co. has been organized in Indianapolis and has leased large quarters at 809 Massachusetts avenue. The company is composed of Fred C. Victor, of Indianapolis, and Russell B. Fodrea, until recently with the Indiana Automobile Co. Agencies for 1907 have been taken for Dragon, Marvel and Moline lines, all of which will be seen in Indianapolis for the first time this season.

Kilgore Company Formed—The manufacturers of the Kilgore pneumatic shock eliminator have recently incorporated as the Kilgore Mfg. Co. under the Maine laws with an authorized capital of $100,000 and with the following officers: President, Herbert Gray; secretary and treasurer, George H. Richardson; superintendent, Frederick O. Kilgore. A factory newly equipped with special tools and machinery is now in operation in Old Town, Me., where also is located the general offices of the company. S. F. Heath has been installed as sales manager.

Make Michelins in Jersey—As a result of the present visit of Edouard Michelin to this country official announcement is made that an American Michelin company has been incorporated with a capital of $2,000,000, and that the erection of a factory will be begun at once. A rubber plant has been secured in New Jersey and a force of experts will be sent over from the French factory. It is stated that the contemplated output of the American factory is 400 tires per day and that the product will be on the market before the next Vanderbilt race. This is the fourth factory Michelin has established. The output of the main factory in France is stated to be 1,000 tires per day and the production of the British and Italian plants 500 and 200, respectively.

ASSEMBLING ROOM OF THE DRAGON COMPANY AT THE PHILADELPHIA WORKS

Cameron Satisfied—The Cameron Car Co. declares it is satisfied with its location at Brockton, Mass., and that it is not contemplating moving to Indiana.

Steamers for the Glidden—The White company is building special bodies with four separate seats on the regular chassis of two of the 30-horsepower touring steamers for use on the Glidden and other tours the coming summer.

Gilson a Mitchell Man—James W. Gilson, who has been for sometime the secretary of the Hartford Rubber Works, has been appointed sales manager of the Mitchell Motor Car Co., with headquarters in Racine, Wis.

Denver Show Dates—Manager G. A. Wahlgreen announces that the Denver show will be held in the Coliseum in that city April 11, 12, and 13. Practically every make of car having western representation will be on exhibition, Manager Wahlgreen writes.

Sells Garage Business—The Amos-Pierce Automobile Co., of 109-113 South State street, Syracuse, N. Y., has sold the garage end of its business to W. H. Bissell, who will conduct it in the same location. The Amos-Pierce company will devote its attention solely to the sales end of the business, it is announced.

Cost of Cadillac Operation—The Cadillac Motor Car Co. is about to advertise affidavits from 200 owners of single-cylinder Cadillacs showing that the average cost to them for maintenance has been but $2.50, the terms of use running all the way from 1 to 4 years. The average cost per mile has been about 1⅓ cents per car, it is claimed, or an average of only about ⅓ cent per mile per passenger. These average costs are based on the expense of gasoline, oil, repairs, etc. In some cases they include tires.

Joins Smith—Ferd Sternberg has joined the forces of Charles S. Smith & Co., jobbers and dealers in motor supplies at Broad and Wood streets, Philadelphia.

Guilder Changes—W. C. Guilder, formerly with the Pope-Toledo people, has accepted the position of superintendent of the Commercial Motor Truck Co. at Plymouth, O. The former superintendent, F. C. Avery, has disposed of his interest in the company.

Harris Joins Hardy—L. A. Harris, for 5 years in charge of the Elephant Battery and Chemical Co., of London, England, and for the past year its American representative at New York, has severed his connection with that concern to engage as salesman with the R. E. Hardy Co.

Byrne Going to Canada—T. F. Byrne, who succeeded Tracy Holmes as manager of the Chicago Franklin branch, has resigned to become manager of the Canadian Automobile Co. of Montreal, which handles the Darracq, Cadillac and Oldsmobile for the province of Quebec. His successor in Chicago has not been announced by the company.

Sintz Company Organizes—Grand Rapids has a new gasoline engine and motor concern in the Sintz-Wallin company, which filed articles of association with the county clerk. This concern is organized with a capital stock of $60,000 and will manufacture and sell gasoline engines and operate a machine shop and foundry. Of the entire amount of stock $38,500 has been paid in, this being the business, fixtures, plant and two foundries of the Peninsular Motor Co., the business of which the new company takes over. The stockholders of the new company are

L. B. Wallin, Claude Sintz, W. C. Wallin, Van A. Wallin, William Andrews and W. J. Bergy.

Watts Is Manager—The New York and New Jersey Lubricant Co. has opened a branch office at 60 Wabash avenue, Chicago, H. C. Watts being placed in charge.

Death of Mrs. W. E. Metzger—Friends of W. E. Metzger, sales manager of the Cadillac company, are sympathizing with him over the death of his wife. Mrs. Metzger died in Detroit last week, failing to recover from an operation.

Interested in New Concern—Those back of the newly organized Martini Import Co., successor to Palmer & Christie, of New York, are Joseph Freeman, F. D. Palmer and P. S. Palmer. The former headquarters at 239 West Fiftieth street, will be continued for the present.

Northern's New Plant—It is expected that about May 1 the Northern Motor Car Co.'s new plant at Port Huron, Mich., will turn out its first car. The new factory consists of two buildings built in the shape of a letter U. Fifty-three men are employed at present and next week this number will be increased to 150. The managing force at the plant consists of the following: W. H. Hutton, Jr., manager; Donald Dingwall, general foreman; Frank Magee, erecting foreman; Frank Chapin, chief of testing department; David Johnson, foreman of painting department.

Britannia Arrives—The first Britannia to be imported into this country has just arrived in New York. It is an 18-24-horsepower four-cylinder touring car. It has a silent rotary pump, new automatic carbureter, water piping of extra large size, powerful internal expansion foot and hand brakes and circular honeycombed radiator with improved fan. The gear box is of a sliding pattern with three speeds and solid bearings. The frame is wide with unusually large body space and the cylinders are cast in pairs with valves all on one side. This car is made by the Britannia Engineering Co., of Colchester, England, and is consigned to Frederick Glassup, the company's sole representative in America.

M. & W. Branch Moves—The Chicago branch of Morgan & Wright has been moved from 15-17 North May street and 309 Michigan avenue to 81 Michigan avenue, Chicago.

Thomas Assembling Room—A photograph recently taken shows the chassis assembling room of the E. R. Thomas Detroit. The stands on which the chassis are mounted were designed by H. E. Coffin, vice-president of the company.

Perlman Adds the Triumph—The New York agency for the Triumph car, built in Chicago, has just been taken by L. H. Perlman, who has so vigorously of late been exploiting the Welch. It will be sold from the headquarters of the Welch on Broadway near Sixty-second street.

Selling Fords in Vienna—That the Ford runabout was a noteworthy exhibit at the Vienna show and that its agent reported the booking of many orders is the information sent headquarters by A. E. Schwartz, who is representing the American Motor Car Manufacturers' Association in Europe.

CHASSIS ASSEMBLING ROOM OF THE THOMAS DETROIT COMPANY

Renovating Quaker Row—Hammer and saw are working overtime these days along Philadelphia's row. The new Knox quarters at 510-12 are almost completed. The Maxwell-Mora garage at 204 has just been turned over by the builders. Work has been begun on the tearing down of the three old structures occupying the site of the monster garage and salesroom to be built during the coming summer by the Keystone Motor Car Co., local agent for the Packard and Buick. T. M. Twining, the Crawford-Marion representative, is awaiting the completion of his new salesrooms, office and garage at 326, which the builders are under contract to turn over to him on April 1. Work has been started on the enlargement of the quarters of the Girard Motor Car Co., Cleveland agents, at 236. Other concerns are awaiting a let-up in the boom which started with last week's warm spell before setting the carpenters at work.

Handling St. Louis in Chicago—Sears & Burgess have taken the agency for the St. Louis in Chicago, being located at 1229-31 Michigan avenue.

New Title for Briscoe—At a meeting held to take action on the resignation of C. W. Kelsey as president of the Boston branch of the Maxwell-Briscoe company Benjamin Briscoe was selected as the new head of the corporation. Frank J. Tyler was reëlected manager of the company.

Quaker Reinforcements—Two new supply and accessories houses put in an appearance on Philadelphia's row last week. One, the largest in the city, is the Automobile Equipment Co., occupies the basement of the Quaker City Automobile Co. at 138-146 North Broad street. The other, under the management of Frank M. Bell, is located at No. 324.

Look Out for Autobunk—Chicago retailers are on the lookout for a smooth confidence man who, posing as a farmer, worked two of the dealers for snug sums by means of a worthless New York draft, presumably raised. His method is to pretend to buy a car, tender a draft larger than the purchase price, and skip with the difference.

Changed Hands—The Miami Motor Car Co., of Dayton, O., has changed management. Pierce Schenck and Charles Drury will build six cars along new lines and new features. Spencer Crane, formerly with the Franklin company at Syracuse, is vice-president and general manager of the new company, which will handle the Franklin, Locomobile and Waltham in Dayton.

Makers Also Engineers—The committee of the American Motor Car Manufacturers' Association engaged in the formation of the Society of American Motor Engineers calls attention to the fact that the engineers in most of the association factories are part owners and not mere salaried employes, instancing as examples J. D. Maxwell, R. E. Olds, Henry Ford, S. H. Mora, W. H. Van Dervoort, R. B. Crawford, L. P. Mooers, A. J. Pierce, W. Bates, James E. Austin and G. P. Dorris.

Not Affected by Strike—The employes in the tool-making department of the Jones speedometer factory at New Rochelle, N. Y., struck Thursday, March 15. Their places were promptly filled by the Metal Trades Association, of which the speedometer makers are members, and practically all the tools needed for the manufacture of 1907 models have been completed. The makers desire through Motor Age to inform the public and the trade that there will be no curtailment, interruption, or material delay in their production, and that their customers may positively rely upon the continued prompt shipment of all orders.

LEGAL LIGHTS AND SIDE LIGHTS

MAYOR WANTS MORE SPEED

Fairmount park commissioners are deliberating over a request of Mayor Weaver, of Philadelphia, to increase the maximum speed allowed in that popular pleasure ground from 7 to 15 miles an hour. It was pointed out that the speed limit was governed by an act of assembly, and action on the matter was postponed pending the examination by the commission's solicitor of the laws upon the subject and, if favorable, the preparation by him of an act for introduction into the legislature asking for permission to increase the speed limit. It is generally admitted that the present maximum is much too low, and the mayor said: "I want to be able to drive through the park without fear of being arrested." The matter of the use of chain tire grips on motors was also discussed by the commission. It was claimed that the chains tore up the road in wet weather and was responsible for clouds of choking dust when the roads were dry, and although no one spoke in defense of their use, the matter was laid over until the next meeting of the Fairmount park commission.

FIFTEEN NEW YORK BILLS

New Yorkers are far from being out of the woods so far as threatened legislation goes. No fewer than fifteen motor car bills have been introduced in the present legislature. Some of them are of the wildcat order. One, for instance, seeks to prohibit any factory building a car capable of covering more than 20 miles an hour. Another of more serious import has in view giving a man claiming to have been injured by a car a lien on it by giving notice of his suit to the secretary of state and the owner of the car. The New York State Automobile Association has asked for a public hearing on these bills, which probably will be granted. There is not any bitter feeling toward motorists among the legislators, with whom the state association stands well, and there is no very serious alarm entertained of the passage of any unreasonable bills at this session.

"JOHN DOE" MUST PAY

A bill has been introduced into the Michigan legislature by Representative Newkirk, by the terms of which any person injured either personally or in property by a motorist who drives on without being identified can collect damages from a state fund to be maintained by the motorists themselves, whose license fees are to be raised from $2 to $5 per year for the purpose. By the terms of the bill the injured party is to commence proceedings in a circuit court against "John Doe" and must put in his proofs as to how the accident occurred and the extent of his injuries. The case must be tried before a jury and the prosecuting attorney is required to defend the case. In case the injured party is given a judgment this fact is certified to by the judge and the record sent to the secretary of state, who holds it until the end of the year. At that time if there is enough money in the fund the claims are paid in full. If there is not they are settled on a pro rata basis.

WASHINGTON FEE, $10

Considerable legislation that is of importance to the motorists of the state of Washington was enacted by the session of the legislature, which has just adjourned. Most of it relates to good roads. No severe raps were taken at the motor interests, and the only thing in this line was the amending of the former license law, placing a $10 fee on motor cars. This bill was by Senator Paulhamus, and is in its brief entirety as follows: "An act to amend section 4 of an act entitled 'An act regulating automobiles or motor vehicles on public highways, parks or parkways, streets or avenues within the state of Washington,' approved March 11, 1905. Be it enacted by the legislature of the state of Washington: Section 1—Section 4 of said act is hereby amended to read as follows: 'The fee for issuing said certificate to each motor cycle shall be $2, and the fee for each renewal thereof shall be $2; the fee for issuing said certificate to each automobile or motor vehicle shall be $10, and the fee for each renewal thereof shall be $10.'" Senate bill, No. 141, which was termed an emergency act, provides for the employment of convicts on state roads. It is as follows: "All convicts confined in the state penitentiary at Walla Walla may be employed under authority of the state board of control in charge of the superintendent of the penitentiary or of such other persons in the employ of the state as the state board of control shall direct, in the building of state roads in this state. All expenses of whatsoever nature incurred through such employment shall be paid from the fund appropriated by the state legislature for the construction of the particular road or roads upon which such convicts may be employed. The places where and the manner in which the work shall be performed upon state roads by such convicts shall be designated by the state highway board." Senate bill, No. 139, creates the state highway board and the office of state highway commissioner. The state highway commissioner shall be appointed by the governor and receive a salary of $2,500 a year, and shall be allowed for traveling expenses each year not to exceed $1,000. A bond of $5,000 is provided. It is further provided that he shall be an experienced civil engineer and surveyor. He, together with the state auditor and state treasurer, constitute the board. This board is authorized through the attorney general to condemn lands for the construction of state roads. The usual other methods of proper procedure are provided for. The act carries an appropriation of $11,000, which will put the board in working order. The legislature made several provisions for road work. A bill of considerable importance provides that county commissioners shall, as often as they deem necessary, but not oftener than once a year, divide their respective counties into different road districts.

BUS PAVES THE WAY

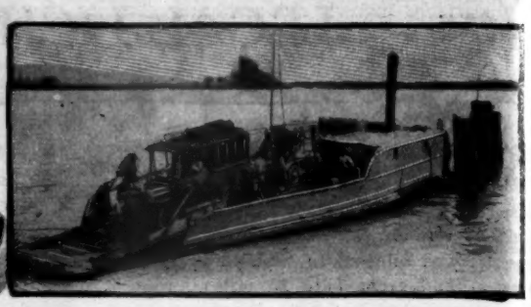
Some of the German municipal authorities make a considerable addition to their budget by means of local taxes on motor cars. This tax is of course most unpopular in all quarters and a great deal of criticism has been directed towards the municipal authorities who insist on the collection of the tax, which sometimes amounts to $10 or $20 per annum per car owned. The municipalities of Tetlow, near Berlin, and of Niederbarnim are taking steps to abolish the tax from May 1 next, although it has brought in over $20,000 yearly. Furthermore, certain roads and thoroughfares which hitherto have been closed to motor traffic are being opened this year. This is especially the case in Potsdam, the emperor's chosen residence. Curiously enough, it is the vogue of the utilitarian motorbus which is bringing about a change of feeling among the class of Germans which has the making of municipal regulations. Once convinced of the handiness and convenience of the autobus, the German municipal councillor feels his heart soften towards the user of the pleasure car and the abolition of vexatious regulations are much the result of the above evolution of the commercial car.

DELAWARE'S NEW LAW

Delaware's new motor law is now up to Governor Lea, having finally passed the legislature. Some of its principal provisions are: A maximum speed of 12 miles an hour in cities and towns and 20 miles an hour in the open; a $3 registration fee for owners and a $2 fee for professional drivers; front and rear tags; motor cycles, which are classed as motor vehicles within the meaning of the act, being included; fines of from $10 to $100 for violating the speed laws, with imprisonment in default of payment and revocation of license on third conviction; nonresidents are immune from the license regulations of the state for 10 days in each year, providing they display the tag and carry the license of another state.

The Realm of the Commercial Car

Rural Motor Bus Service

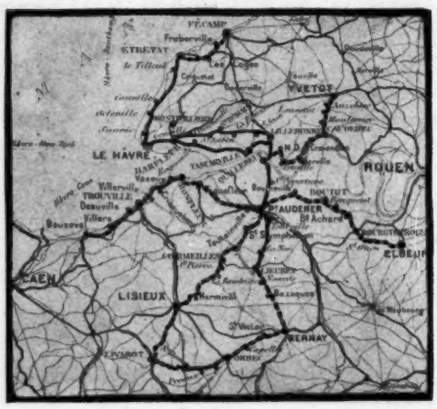


UNLOADING FROM THE SEINE FERRY

THE Compagnie des Messageries Automobile, of Havre, France, may be considered one of the biggest operators of rural motor buses in France and one which can be looked to as offering the best data on which to base the approximate cost of operating an extensive system of rural motor buses as well as affording a good example of what organization and system can accomplish. At present the company operates a fleet of twelve motor buses over an area 7 miles in width and 15 miles in length and located in the district of Normandy bordering on the English channel. It is the intention of the company in the course of 6 months to increase its fleet of cars to forty and its field of operation to more than double the present area.

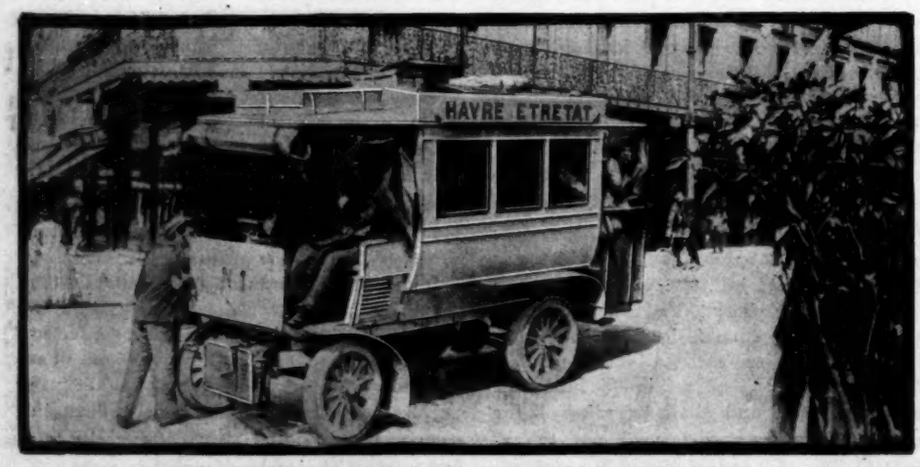
Before entering upon an analysis of the many routes covered by the company at the present time, it is of interest to note that the manager of the company has selected light motor buses for the work, machines with from ten to twelve seats and capable of operating at a speed of 15 miles per hour instead of employing cars with accommodation for twenty people and able to average but 9 miles per hour. In fact, it has been proven during the experience of the company that light motor buses can maintain an average speed of 17 or 18 miles per hour without any possible danger from accidents.

The accompanying map shows the district around Havre in which the present buses operate and in which it is the intention of the company to operate all of its vehicles when the numbers are increased. Some of the routes are in service all the year around, others only in the summer or seaside season, and still others only during particular seasons when the traveling patronage warrants. One of the lines extending from Havre, one of the leading seaports, to Point Audemer and in its course crosses the Seine river by means of a small steam ferry, as shown by one of the illustrations in which a regular touring car is displayed ready for transit. Because of the ferry charges the company bought this ferry system and intends to change it from steam power to gasoline,



DISTRICT OF MOTOR BUS OPERATION

which will be more economical because of the cost of maintaining a steam pressure at all times, whereas with gasoline power there is no consumption of fuel except when the ferry is in operation. A second motor bus line extends from Havre to Etretat, a summer resort 18 miles northeast, along the coast. Etretat is operative only in the summer time, during which period the buses maintain an average speed of 12 miles per hour, including stops.

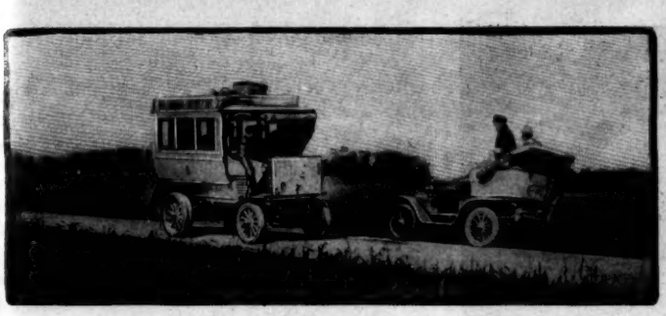


DE DION-BOUTON TWELVE-PASSENGER BUS LEAVING HAVRE

This line was opened July 1, 1903, at which time three steam buses were in use but with these 3 hours were taken to complete the journey, which is now accomplished in an hour and a half with the gasoline machines. In spite of this handicap in steam operation the line proved a success from the beginning. The experience with the steam machines showed, however, that the rather bad condition of the roads, the expensive upkeep for steam machines as well as the slow transit made it certain gasoline vehicles would prove much superior. This assumption was well carried out by the fact that the de Dion-Bouton works brought out at that time on improved gasoline bus fairly light in construction, capable of an average speed of 16 miles per hour and with a carrying capacity for a dozen passengers. These vehicles were immediately started and the revenue from the system rapidly increased. At first the people hesitated, not wishing to entrust their lives to gasoline cars operating at such a speed, but after an experience of 4 years it has proven that 15 miles an hour is not excessive, in fact, perfectly safe. Having made such a favorable impression with its light gasoline machines, the company looked for fresh fields and started a service between Havre, Lillebonne and Quilleboeuf. In November, 1904, a similar service was organized between Havre and Point Jerome which was afterward extended to Port Audemere, and it was in conjunction with the maintenance of this system that the ferry above mentioned was purchased. The latest addition to this service is a line from Lisiux. The number of passengers carried daily on each line varies from two to eight in each direction, according to the seasons, which service is more regular than that possible by the local railways.

The speed of the buses lately placed in service is 15 miles per hour, and the fares charged amount to 3⅕ cents per mile cheaper than which the company cannot transport passengers at a paying profit, in view of the fact it enjoys no postal or other subsidies. The buses also are arranged to carry on top some 700 pounds of freight or baggage, for which varying charges are made. Finally the company does a lucrative trade in carrying and delivering small packages, for which a minimum of 6 to 8 cents is charged.

The total distance covered by the buses,



When Friend Meets Friend on the Road

General Motor Bus Garage at Havre

that is, the total network, is 250 miles, and for this service some forty buses are kept in constant service. The first were steam cars, weighing 6 tons empty and 9 to 12 when fully loaded. The up-keep was excessive, and although during the summer months the service was a paying one, yet for a constant service it was decided to place in service a lighter bus. Some 15-horsepower chassis were ordered from de Dion-Bouton and a body placed thereon which seated fourteen persons besides a certain amount of baggage. The bus weighed 4,400 pounds empty and double this when loaded. Torrilhon solid rubber tires were used.

Since this time for the lines where traffic was expected to be less, buses with ten seating places were ordered, which have proved very handy, cheap and convenient carriages. The rear platform placed in the earlier buses was done away with in the lighter buses. It had been noticed that too much weight on the rear axle caused a galloping of the bus, which, as well as being unpleasant, caused an abnormal wear of the front tires and shocks to the motor and mechanism in general. The weight of the ten-passenger bus is 3,600 pounds and a two-cylinder 10-horsepower motor replaced the larger machine. The cost of operation of the small ten-passenger bus and the twenty-passenger vehicle, including in each case capital charges, insurance, general expenses, garages, salaries and wages, fuel and tires are $10 to $12 ten passenger, and $17 twenty passenger respectively, for distances of 100 to 150 miles covered daily. The smaller buses, seating ten, may make more journeys than the large vehicles, and at a less total cost, and transport, nevertheless, a greater total number of passengers. An examination of the oldest bus of the company, placed in service in 1903 and which has covered about 120,000 miles in regular service, shows little sign of wear of vital parts and allows a capital redemption item covering 10 years' service.

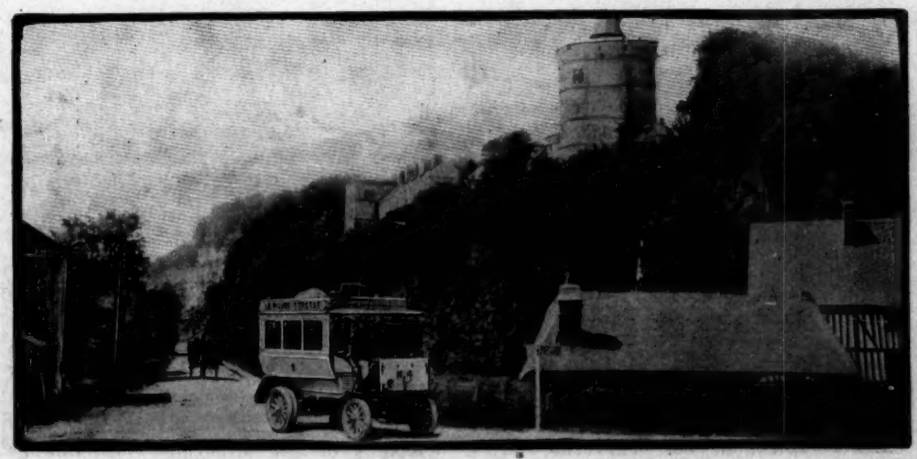
The operating expenses include a large item for tires. For such heavy vehicles and the regular service exacted, pneumatics were not to be considered and solid rubber bands of the Torrilhon make were adopted. The greater part of these tires cover 13,000 miles before becoming in bad state. No anti-skidding bands have been found necessary. The heavy buses cost 6 to 9 cents per car-mile for tires, whilst the lighter ten-passenger buses cost but 3⅓ cents per car-mile. Another reason for the adoption of the smaller bus. The fuel used is known as moto-naphtha. The smaller buses cover 15 miles with a gallon of this; the large buses require a gallon every 8 miles. A driver and a conductor are carried on each bus. The

Ferry on Seine River

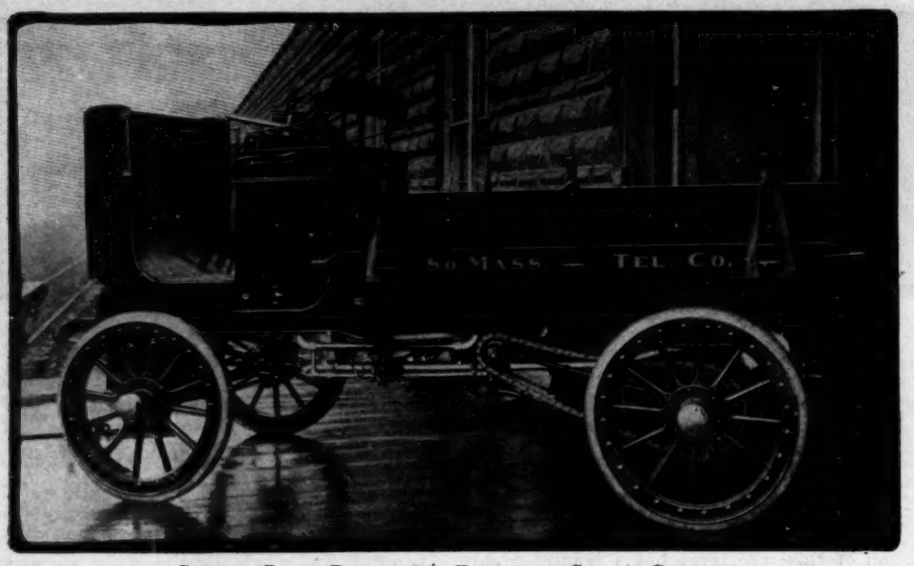
driver is paid 12 cents per hour, and a percentage on the gross earnings. He has no mechanical knowledge. The conductor is paid $25 per month plus tips and extra profits he may make for small services. The repairs and up-keep are maintained by a small staff of mechanics, who are paid less than $2 per day each.

The policy of the company has been not to consider whether this or that line paid its way. Each line was considered as a possible feeder for the others, and worked accordingly. It is very probable that taken singly and worked alone none of these lines of buses would pay its way, and only as a whole can sufficient traffic be made to fill the buses, exception of course being made of the summer months. The whole district is too sparsely inhabited to consider the installation of an electric trolley system, which again does not allow the same mobility as the motor buses, which can change their routes according to the local conditions and local fairs. For the last 6 months of 1903 with fifteen buses in service the company obtained over $6,000 in receipts. In 1904 this figure increased to $18,000, and in 1905 to $23,000, which figure was attained for the first 9 months of 1906. The receipts per car mile cannot be given with any constancy, depending upon the route, season and other local conditions, which vary month by month.

The greatest lesson to be learned from the operation of this company is the value of small vehicles for road use as compared with twenty-passenger machines. Recognition must be taken of several factors in the consideration of heavy road service: wear and tear, replacing of rubber tires, and the consumption of gasoline, oil and grease. The expense of operating a twelve-passenger machine is not half of that of an eighteen-passenger one, a fact proved by experience. Another argument in favor of smaller vehicles is that on rural routes, the days when passenger traffic is heavy represent the exception and on 5 or 6 days of the week traf-



Passing Chateau de Tancarville on de Dion-Bouton Bus



SPECIAL RAPID DESIGN FOR TELEPHONE SUPPLY COMPANY

fic is not heavier than to warrant the use of small vehicles. Speed is the great essential of rural traffic and on this score the light vehicle has a wonderful advantage. For city use the problem is different and buses capable of carrying thirty passengers are much more economical than those with accommodation for a dozen because as proved by experience the traffic is sufficient to warrant their use. The accompanying table shows the number of passengers carried by this system from July, 1903, to November, 1906, in which time it has almost trebled, which the officers of the company say is largely due to the substitution of light for the heavy vehicles.

Month.	1904. Fr.	1904 Fr.	1905. Fr.	1906. Fr.
January	—	3,703.80	6,874.50	7,043.85
February	—	2,908.70	4,157.80	6,739.75
March	—	3,614.65	5,395.65	7,393.20
April	—	4,834.90	7,508.80	10,262.75
May	—	5,459.55	7,095.55	9,695.65
June	—	5,701.35	10,007.10	12,224.90
July	5,101.30	9,926.65	12,952.85	16,937.30
August	11,711.90	20,701.15	21,080.35	23,155.10
September	10,066	12,258	12,930	17,561.55
October	4,189.40	5,760.50	9,7e0.55	11,463.60
November	3,161.65	6,561.10	7,936.20	10,229.75
December	2,395.45	6,710.55	7,760.20	—
	36,625.70	88,143.60	113,470.55	—

BODY VERSATILITY

With its usual versatility of body styles the Rapid Motor Vehicle Co., Pontiac, Mich., enters the 1907 market with a list considerably larger than that presented to the public in previous years, and one comprising all the lines necessary for many business industries. Four of the representative makes are illustrated on these pages and in which list are not included any of its various sight seeing machines, delivery wagons, stake side trucks, screen side delivery wagons, lattice side trucks, and a few other special designs. Of those shown the express wagon with canopy top and side curtains is perhaps the best known style, and as a close second is the low side truck for the Massachusetts Telephone Co. The other styles are special products, the Sands wagon being well adapted for the carrying of electrical supplies, and the "bottle" wagon, much after the lines of those horse-drawn vehicles engaged in similar pursuits. In all of these machines the standard Rapid chassis is used, it possessing a 24-horsepower, two-cylinder, opposed motor with 5 by 5-inch cylinders carried amidship and placed longitudinally above a pair of dropped cross pieces of the main frame. Speed variations are through a two-speed planetary set carried on a shaft, forming a continuation of the crankshaft, and from which a chain communicates with a jackshaft and differential. From this shaft side chains connect with the back wheels. The telephone supply wagon with 1-ton capacity has a carrying space back of the seat, measuring 7 feet in length, 3 feet 6 inches wide and 1 foot deep. The wheelbase measures 86 inches, wheels are 32 inches in diameter and carry 3-inch solid rubber tires and spring suspension is through a platform system in front and full elliptics in rear. The remaining three styles shown have platform springs in rear. Steering columns are made straight or with a slight incline, according to the demands of the situation. The line of sightseeing and wagons for rural stage routes offers good selection for prospective buyers. Besides building these wagons with various passenger accommodation, they are built with all kinds of weather preventatives. All considered they are suited for a wide range of stage work.

BIG TAXIMETER RECEIPTS

In asking for public support in a recent increase of capital the following figures were given out by two motor car taximeter companies as representing the state of their business. The first company operates in Paris and started some months ago with sixteen cars on the streets and increased this number gradually to sixty. The figures are highly interesting as showing the profits which this sort of trade is bringing in at present in France:

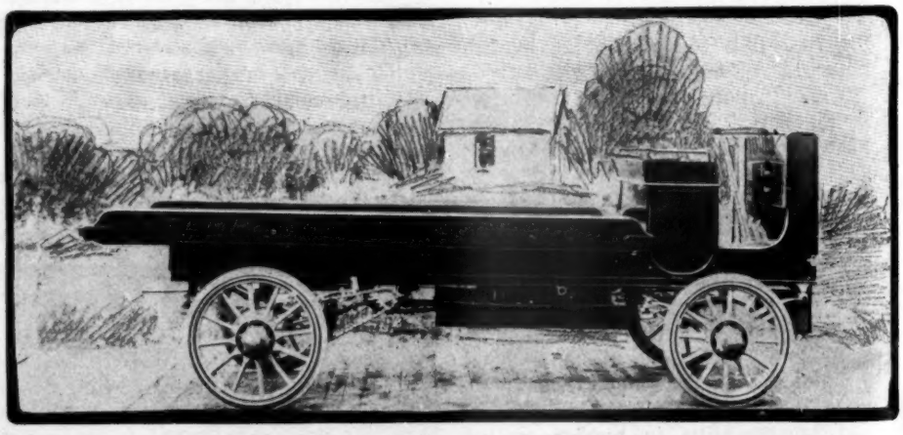
Daily receipts per cab, $12.

Operation expenses, drivers, fuel, taximeters—hired—insurance, repairs and repayment of capital charge, $6.25.

General expenses, including rents, management, garages, $2.

Total of operation expenses, $8.25, leaving net profit per cab day $3.75, which is equivalent to a net profit per annum per cab of $1,350.

The daily receipt of $12 is stated to be a minimum and frequently reaches $18 or $20. On the other hand operating expenses, except capital charges, are found to decrease with the number of cabs in service, but calculating on the basis of only sixty cabs belonging to the General Automobile Taximeter Co. the net annual profits are seen to be 40 per cent of the capital outlay, which latter is $100,000. These figures are, however, inferior to others which are supposed to be guaranteed by another flourishing Paris motor cab company. The second example concerns another taximeter cab company which operates in Marseilles. Here the expenses are somewhat less, as also are the receipts:



RAPID MOTOR VEHICLE CO.'S BOTTLE WAGON

EXPENSES PER CAB PER DAY

Chauffeur	$1.00
Gasoline and lubricating oil per 92 miles.	1.40
Tires	1.40
Upkeep and capital repayment.	1.80
Rent, taxes, insurance, repairs.	.80
	$6.40

The actual receipts of taximeter motor cabs in Marseilles—a town of about 500,-

000 inhabitants—is about $9 per day, but the company fixes these for the purpose of getting a fair comparison, at only $8 per day. Deducting the expenses as per above list, amounting to $6.40, there remains a net profit of $1.60. Assuming that each cab works for 300 days per year, and this is a low estimate, the net receipts per cab year are not far short of $500, or, for forty cabs in service, a total of $19,200. Of

SPECIAL RAPID BODY DESIGN FOR ELECTRIC COMPANY

this sum the company in question is placing 5 per cent to its legal reserve $960.

Payment of 5 per cent to shareholders	$ 4,000
10 per cent of the balance to the directors	1,420
20 per cent of the balance to special reserve fund	2,850
And still has a balance in hand, for further dividends, of	10,000

With the above figures in the eyes of the French investing public there is no cause to wonder at the rush to invest in French motor cab companies which are being formed every week in Paris and no surprise can be felt that the various French works are overflowing with orders, amounting sometimes to four figures, for the handy, convenient, cheap and at the same time well-paying taximeter cab. The capital charges of the cab companies are based upon a repayment of capital in 5 years. They started with an estimated life of 8 years for the cabs, but the rough and tumble service of taximeter cabs soon reduced this and some are even inclined to place it at 3 years' service. Not that the chassis would be worn out in this time but the coachwork would require complete renewal and overhauling and other important repairs would cause a complete cessation of the service of the particular cab, and this must be reckoned in the cost of capital redemption.

ARE CONSULTING AGENTS

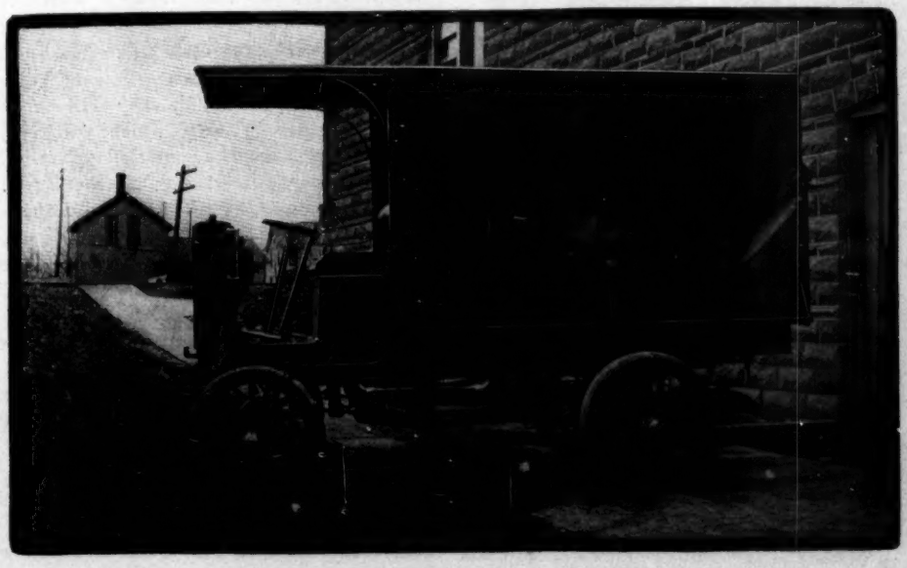
Martin & Co., 29 West Forty-second street, New York city, consulting engineers for prospective buyers of commercial cars, conduct an advisory department for commercial gasoline and electric vehicles of all classes. The business originated with Charles H. Martin, of the concern, who for several years was associated with the Knox Automobile Co. and who during his relationships there had an opportunity of noting the mistakes made by many parties in the installing and operation of commercial cars. Cecil H. Taylor, the other member of the firm, has been associated with the commercial car business in America and abroad for 5 years. Added to the experience of the two members of the firm in commercial cars is a tabulation of the experiences of hundreds of owners, the data for which has been obtained by correspondence and personal inquiry. When giving advice regarding the buying of commercial machines or organizing a commercial system Martin & Co. first go over with the promoter the conditions under which the hauling is to be done, taking into consideration grades, routes, road surface conditions, number of stops, class of goods handled, facilities for caring for the machines, after which they give a written report covering fully the gasoline and electric situation as it applies to the case in question. Whichever type of powered vehicle, gasoline or electric, is best suited for the case is told, the names of reliable manufacturers given and opinions stated as to the capacity of the machines needed, size of tires and best body design to use. Where gasoline machines are recommended the gasoline situation is well covered and advice as to the proper repair and storing maintenance included. The approximate monthly and daily cost of operation is appended. Besides conducting this advisory department Martin & Co. make out-of-town trips and purchase machines and organize systems wherever such assistance is desired.

NEW FIRE APPARATUS

The latest vehicle to enter the motor field is the motor fire truck and water tower which will be manufactured in Houghton, Mich., by a company composed of John L. Harries, superintendent of the Hancock Consolidated, and John P. Peterman, of Allouez. Carl A. Schwarz, of Detroit, inventor of the vehicle, will be superintendent of the company. The Carroll foundry has taken the contract to manufacture the machines and Mr. Schwarz now is in Houghton superintending the erection of the initial truck, which will carry a combined water tower and fire escape. The tower, which is made of steel, is collapsible and is in twenty-six sections. It is raised by the motive power of the truck. The hose is carried up with it. It is so arranged it can be brought close up to any building, thus furnishing a means of egress. The first truck, it is expected, will cost in the neighborhood of $10,000, but it is believed it can be manufactured for half that sum. The first truck will be ready for demonstration about May 1.

QUAKERS GET WISE

The way has now been cleared for the operation of motor buses in Philadelphia. An amendment having been adopted by councils' highway committee restricting the running of such vehicles to such streets as are not occupied by a trolley line, the ordinance was finally favorably recommended. Final action will be taken this week, and as there is little or no opposition Philadelphians hope to see double-deck motor buses on their streets before May 1. The Auto Transit Co. already is at work on thirty vehicles.



STANDARD RAPID EXPRESS WAGON WITH TOP

FROM THE FOUR WINDS

Entries Close May 22—Entries for the endurance run of the New Jersey Automobile and Motor Club scheduled for May 30-June 1 will close on May 22.

Club Election—The Automobile Club of Hudson County, a Jersey City organization, has elected the following officers for the ensuing year: President, J. V. Z. Anthony; vice-president, John P. Landring; board of governors, E. M. Dixon, J. H. Edwards, Dr. L. A. Opdyke, H. T. Pond and Herbert Scott.

Lulled by Lull—A few days ago half way up one of Hartford's steepest grades a driver of a heavily-laden coal wagon was endeavoring to extricate his team from a mud depression to no avail. D. C. Lull, of the Electric Vehicle Co., happened by in a 45-horsepower Columbia test car and proffered assistance, and for his intended kind offices was roundly cursed by the driver, who continued to lash the tired animals. This was too much for Lull, who threatened to chastise the driver if he didn't desist. With his car he hauled the team out of the rut. The driver then looked sheepishly at Lull with a "Thanks, Guvnor."

On the Defensive—A motor club has been organized in St. Louis county. This organization is entirely independent of the Automobile Club of St. Louis. Many of the St. Louis owners of cars live in the suburban towns of St. Louis county, where the vigilance of the sheriff and a strong force of deputies, backed up by cornfield justices of the peace, have made motoring a perilous sport. For some time the owners have felt the need of an organization to protect their interests. The club starts out with a good membership. The officers are: Edward E. Doss, of Ellisville, president; Peter Gluck, of Gumbo, vice-president; James Staebell, of Manchester, secretary and treasurer.

Proves His Argument—While John Kane Mills, president of the Dragon Automobile Co., was taking luncheon with several of the motor car trade in New York an argument arose regarding the popularity of the Dragon car. Mr. Mills ventured the opinion that almost any small town in the country had heard of and knew about this car. After a long discussion the head waiter was called and asked to open a postal guide book at random, it being agreed that the first name on the page should be the town to be questioned on the subject of the Dragon's popularity. It happened that the book was opened to a page at the top of which was the name Seymour, Ind., and a telegram was sent to the postmaster at the place reading as follows: "What does 'Dragon' mean?" Before the luncheon was over this answer was received: "'Dragon' means either a wild beast, a fairy story, a Welsh rarebit dream or an automobile.—Postmaster, Seymour, Ind."

Space at Jamestown—The Jamestown exposition people announce that the price of space in the motor section of the palace of transportation is $1 per square foot for the entire period of the exposition. They also say they will supply whatever the accessory makers want in the way of gas, water and electricity at the usual rates and that they will permit the use of gasoline for demonstrating.

Coast Progressive—One of the results of the good roads movement in the state of Washington is an effort that has just been launched to have appointed to the faculty of the state university an instructor in highway building. The officers of the state good roads association are advocating this strongly and urging that a man of national reputation be secured. In a measure the present effort is due to Samuel C. Lancaster, consulting engineer, department of public highways. He maintains that there is a future for the expert road builder. In Washington the great road work is still to be done. Much will have to be done during the next 2 years, as the good roads workers west of the mountains are decided that a good impression shall be made during the Alaska-Yukon-Pacific fair, when many eastern people will come here, and the wealthier classes will naturally take their cars along.

Changes in Vanderbilt Thomases—Work already has been commenced at the plant of the E. R. Thomas Motor Co., at Buffalo, on the remodeling and tuning up of the three big 115-horsepower racing cars that will represent that concern in the Vanderbilt this fall. A separate wing of one of the new concrete and steel factory buildings has been set aside for work on the racing cars. The cars have been taken down and the alterations planned are now in progress. It is expected that they will be on the road early in July, which will give them almost 3 months for final tuning up. The changes to be made are merely in detail, although they will alter the appearance to some extent. The most important one to the eye is the substitution of separate seats and gasoline tanks. Last year the seats of the Thomas cars were sunk in the gasoline tanks. The danger from flying stones was considered too great, however, and cylindrical tanks have been put on instead. The most important mechanical changes are in the placing of channel-section cross braces under the engine bases and transmission cases. The frames will be shortened to allow better negotiation of turns and the carbureters will be placed on the left-hand side of the motor instead of on the right. Detachable rims will be fitted to all the wheels. The B. L. M. makers announce they will have three cars in the race. This makes twenty-seevn declared to date.

Picks Official Truck—The Reliance Motor Car Co. announces it has been informed that the Reliance truck has been selected official baggage car for the Glidden tour by the American Automobile Association.

Would Discharge Commission—Representative Colby has a bill ready for presentation to the Michigan legislature which, if it passes, will do away with the state highway department, placing the work of the office into a commission of three members. The bill provides for the employment of a competent engineer and also limits the number of miles of roads which may be built under the state reward system in vogue in Michigan.

Tested in Deep Snow—Dr. Dunsmoor and Russell M. Bennett wanted to get out to Deep Haven, some 15 miles distant from Minneapolis, in order to maintain their loyalty and cast their votes at the election held there. Although he knew that the roads would be in bad condition, Onar Bergstrom, the Aerocar agent in Minneapolis, welcomed the opportunity to demonstrate the ability of his motor car. Beyond the city he found approximately a foot of snow. No other vehicles but sleighs had been over the roads for months and the track therefore was narrow, compelling him to run with two wheels in the deep snow all the way. The Aerocar went through it all as if it had been summer time and the roads in much better shape, it is said by the agent.

Quayle Reëlected—At the annual meeting of the New York State Automobile Association, held in Auburn, Oliver A. Quayle, of the Albany Automobile Club, was unanimously reëlected president. To the effective work done by Mr. Quayle as chairman of the legislative board much of the strength and popularity of the state association are due. He has been vigilant in keeping a keen eye on the numerous motor measures introduced in the New York state legislature, and it appears probable from present indications that the existing law will continue in effect without any changes. H. S. Woodworth, of the Rochester Automobile Club, was also reëlected to the first vice-presidency; N. M. Pierce, of the Binghamton Automobile Club, to the treasurership, and C. D. Hakes was continued in the secretarial position, he recently having been elected to fill the unexpired term of Frederick H. Elliott, who resigned in order to take the national secretaryship of the American Automobile Association. The

New York state association has a membership of twenty clubs, including the Cohoes Automobile Club admitted Thursday, and about 3,700 members.

Americans Entered at Nice—Entries for this year's annual race meet at Nice, France, have been made by Dr. F. Harvard Johnson and B. Neilson Winthrop, of New York, and H. W. Barthol, of Philadelphia.

Japan Ideal for Touring—In a lecture in Buffalo recently Charles J. Glidden related interesting and instructive tales about his tours in foreign lands. The speaker had several stereopticon views with which to illustrate his remarks. According to Mr. Glidden, outside of this country the ideal place for motoring is Japan, where long stretches of good roads, shady nooks and interesting people can be found. In India, Mr. Glidden said, he met a maharaja who was a motoring enthusiast of the most confirmed type. Thirteen cars were owned by the easterner and he employed a brigade of drivers.

Illinois Roads—Statistics compiled by the federal office of public roads show that in 1904 Illinois had 94,141 miles of public road. Of this mileage, 6,800 miles were surfaced with gravel, 1,106½ miles with stone, 4½ miles with brick, 6 miles with slag, an equal amount in burnt shale, and 1 mile with cinders, making in all 7,924 miles of improved road. It will be seen from these figures that 8.4 per cent of the roads have been improved. By comparing the total road mileage with the area of the state, it appears that there were 1.6 miles of public road per square mile of area. A comparison of mileage with population shows that there was 1 mile of road to every fifty-one inhabitants and 1 mile of improved road to every 608 inhabitants.

Iowa Interested—Providing the support of the state legislature is secured and plans already projected reach a successful culmination, Iowa will be covered by a network of cement roads, right-of-way for a state motor railroad. Facts in connection with this innovation along transportation lines were made public through the introduction of a bill in the house last week which will permit motor railway companies to have the same privileges with reference to right-of-way that are allowed steam railroads. The bill was introduced by Chairman Meredith, of the railroad committee. Des Moines capitalists, eastern moneys and organizations in the smaller towns of the state are back of the movement. The undertaking calls for the building of cement roads connecting over 100 towns in Iowa. They will be maintained just as the steel track of the steam road bed. Motor cars capable of carrying thirty to forty passengers will be operated over these lines at a potential speed of 60 miles an hour. It is proposed to reach the smaller towns of the state and act as feeders to the steam roads. Cost of construction and operation of the system, it is declared, will be one-half that of interurbans, and the cost of operating is scheduled at 20 per cent below the cost of running electric cars.

Dun Not Mending Fast—R. L. Dun, the war correspondent, who was injured when the Welch car was struck by an electric on its run from New York to Boston during the Boston show, is not mending very rapidly. He is at a Boston hotel and the doctors say it will be some months before he will be able to use his injured leg.

Runabout Scheme—Owners of runabouts, which have proven so popular this season, are in a fair way to have trouble sooner or later in ascending grades owing to the position of the gasoline tank. This is avoided in the Thomas Forty runabout by connecting a small air pump just to the left of the driver's seat with the gasoline tank by which pressure is maintained and a constant flow kept up in case of an emergency.

Dragons in Glidden—John Kane Mills, who recently wrote to F. B. Hower, chairman of the touring board of the A. A. A., regarding the Glidden tour, has received a reply from Mr. Hower accepting the entries of four Dragon cars for the tour, subject to rules to be formulated later. Mr. Hower appreciated and thanked Mr. Mills for valuable suggestions he offered for the coming tour and stated that all the points made by Mr. Mills will receive careful consideration. As soon as entry blanks are printed, formalities connected with the entries of the four Dragons will be completed.

Hotchkiss the Guest—The Cleveland Automobile Club will hold the third smoker of the season next Saturday evening. W. H. Hotchkiss, of Buffalo, president of the American Automobile Association, will be the guest of honor and will deliver an address. On the afternoon of the same day the annual meeting of the Ohio Automobile Association will be held in the club rooms. Besides representatives of the four clubs, Cleveland, Cincinnati, Columbus and Akron, which comprise the association, Lima and Springfield are expected to have delegates present and it is probable that these clubs will join the Ohio association.

A. C. A. Garage Ready—Although the formal inauguration of the new Automobile Club of America's clubhouse will not take place before the middle of April the garage was opened this week, over a score of cars being taken in. The garage committee has adopted stringent rules and every effort will be made to solve the driver problem by reporting to the owner any questionable practices. In this event it is threatened that not only the driver but the car will have to leave the building. The first installment of machinery for the repair department has been received. Tables and many tools already are available for the ordinary work of repair. The club has elected no new members since last November, the limit of 1,000 having been reached. There will be no raising of the membership limit until the house has been occupied at least 3 months.

Asks Bids for Roads—The New York state engineering department will advertise for proposals for constructing three roads in Onondaga county aggregating in length 4½ miles, the total cost to be about $50,000.

Thomas Students—During the fall a motor school was organized by the E. R. Thomas Motor Co. at Buffalo and a part of one factory building was set aside for a class room. Soon inquiries began to pour in and there was no difficulty, after the start had been made, in filling all the classes. The prospective drivers come from all parts of the country, as is shown by the fact that in the class now going through the school two of the men are from North Dakota, three from Virginia, one from Nebraska, one from Georgia and two from Canada. The men are without exception young and bright-looking and are of a mentality that enables them to grasp quickly the mechanical problems involved in motoring.

Kelly Takes the Valves—Ernest R. Kelly, of Philadelphia, who was in charge of the non-stop motor run of the Thomas Flyer which lasted 21 days, 3 hours and 29 minutes, beating all previous records by over two and one-half times, has received as a token of appreciation from the E. R. Thomas Motor Co. four exhaust valves. It was the intention to do something for Kelly which would be in keeping with what he had accomplished, but he declined to accept anything. When he saw the valves taken from the motor at the conclusion of the Buffalo show, however, he changed his mind. There was scarcely a trace of carbon deposited on them even after their long and arduous run, and he declared: "I'll take those. They show better than anything else the truth of what I've been telling Philadelphia people about this car," he said.

Engineers Meet—At a meeting of the Society of Automobile Engineers, held at the Flatiron building, in New York city, it was decided that there should be a summer session of the society held at Buffalo between July 20 and August 10. The meeting will occupy 3 days, of which one will be devoted to visiting the local motor plants. The committee in charge of the arrangements consists of T. J. Fay, Henry Hess and H. M. Swetland. A publication committee to take charge of all papers and publications of the society was appointed consisting of H. F. Donaldson, H. L. Towle and A. L. Clough. A regular business meeting will be held early in May. The president announced that the society had been recognized as a permanent engineering society by the American Society of Mechanical Engineers and that it therefore would exchange papers with that society.

BRIEF BUSINESS ANNOUNCEMENTS

Buffalo, N. Y.—M. P. Kinney is to build a two-story brick garage at 1114-1113 Main street.

Jefferson City, Mo.—Everybody's Motor Car Mfg. Co. has been incorporated with a capital stock of $50,000.

Boston, Mass.—The new three-story garage of the Locomobile company on Newberry street will shortly be ready for occupancy.

Richmond, Va.—The Jenkins Brothers Auto Co. has opened a new garage at 1607-09 West Broad street. The company acts as agent for the Pope.

Cleveland, O.—Ground has been broken for the new factory of the Royal Motor Car Co. The new plant will have a capacity of from ten to twenty cars a day.

Cleveland, O.—Dwight B. Huss, of Detroit, Mich., and E. Van Benschoten, of Clyde, O., have formed a partnership and will shortly open a salesroom in this city for the sale of the Brush.

Newark, N. J.—George C. Bartow, of the Hall Mfg. Co., of New York city, has purchased a controlling interest in the Essex Automobile Co., and has been elected president of that concern.

Norwalk, Va.—An ordinance has been passed by the board of aldermen making it unlawful to erect motor car garages until the proposed ordinances regarding such matters have been passed. This measure is directed at the proposed Doush street garage.

Youngstown, O.—The Standard Auto Garage Co. has been incorporated with a capital stock of $25,000.

Los Angeles, Cal.—Joseph Hill, formerly of Chicago, is to join the forces of A. J. Smith, agent for the Elmore.

Boston, Mass.—The Post & Lester Co., now located at 807 Boylston street, will open its new store at 823 Boylston street on March 15.

Los Angeles, Cal.—J. F. McNaughton, local agent for the Dolson and Mora cars, has taken part of the garage of the Electrical Construction Co. at 1126-1130 South Main street.

Pittsburg, Pa.—The Auto Repair Co., the agent for the Haynes, is having its garage on Seventh avenue completely gone over, and will start the season with new equipment.

Brooklyn, N. Y.—W. H. Reddig, who has been connected with the Daimler Mfg. Co., is to return to the Pope Motor Co., of Toledo, with which concern he was formerly identified.

Fittsburg, Pa.—M. H. Page, who has represented the Olds Motor Works in China, India and several cities abroad, is to be manager of the local branch of the Mercedes Import Co., which shortly will be opened here.

St. Louis, Mo.—The Union Light and Power Co. is about to erect a new garage here, in which it will be possible to charge 100 electrics at the same time. The company has takn the agency for the Rauch & Lang electric.

Milwaukee, Wis.—The McDuffee company is to build a garage on Eighth street, between Sycamore street and Grand avenue. The new structure is to be two stories high, 70 by 150 feet, and is to be completed by May 1.

Pittsburg, Pa.—The Standard Automobile Co. has broken ground for a new garage on Aiken avenue. The building will be a six story structure, 100 by 150 feet. The concern is the agent for the Packard and Franklin.

Los Angeles, Cal.—James F. Morley is fitting up a garage in the Grand Avenue Rink. He has taken the agency for a commercial car, manufactured by the Coppock Motor Car Co., but later on expects to add several other cars to his list.

Danbury, Conn.—Carl Page, New York manager for the White company, is interested in the new concern to be located here, which will be known as the Pyramid Motor Car Co. A new garage is to be built at once, and the White, Buick, Cadillac and Pope-Waverley will be handled. The company will cover western Connecticut.

Trenton, N. Y.—The Outcalt Mfg. Co. will move its plant and garage to Hightstown in the near future.

Providence, R. I.—O. D. Snow & Co., the local agents for the Stevens-Duryea, have removed to Broad street and Potter avenue.

Brooklyn, N. Y.—The Williamsburg Auto and Storage Co. has opened a branch at the New Bedford garage, Bedford and Atlantic streets.

New York—George W. Kyle, the former manager of the repair and order department of the Maxwell-Briscoe Motor Co., is now connected with the Welch Motor Car Co.

Victoria, B. C.—The Pilmey Automobile Co. expects to be installed in its new garage on James Bay by May 1. The company has a capital stock of $40,000 and will handle English cars exclusively, in addition to running a tally-ho during the summer months.

Brooklyn, N. Y.—A new motor repair shop is to be opened by the Flagler company. Mr. Flagler has for many years been identified with the high class carriage trade here, and recently has enlarged and improved his plant to include the new department.

NEW AGENCIES

Jamaica, L. I.—Disbrow Brothers, Rainier.
Cleveland, O.—Wentworth Motor Car Co., Mora.
Washington, D. C.—Motor Car Co., Buick.
Buffalo, N. Y.—Buffalo Motor Car Co., Cartercar.
Milwaukee, Wis.—Solliday Motor Car Co., Wayne.
Denver, Colo.—Overland Motor Car Co., Cartercar.
Iowa City, Ia.—H. A. Knease & Sons, Rambler.
Denver, Colo.—Western Automobile Co., Wayne.
St. Joseph, Mo.—Mitchell Automobile Co., Glide.
Uniontown, Pa.—Fort Pitt Automobile Co., Oldsmobile.
New Orleans, La.—John S. Watters, Wayne.
Altoona, Pa.—Altoona Motor Car Co., Jackson.
Pittsburg, Pa.—W. R. Mooney, American Mors.
Seattle, Wash.—M. Francis Kane, Wayne.
Boston, Mass.—Concord Motor Car Co., Waltham.
Boston, Mass.—Fred C. Smith, Waltham.
Chicago—C. P. Kimball & Co., Rauch & Lang electric.
Elizabeth, N. J.—Elizabeth Automobile Co., National.
Plainfield, N. J.—F. E. Poland Motor Co., National.

RECENT INCORPORATIONS

Geneva, N. Y.—Dorman Motor Car Co.; capital stock, $10,000; to manufacture motor cars and other self-propelling carriages and trucks; incorporators, D. M. Dorman, S. F. Dey and J. C. Rose.

New Haven, Conn.—Continental Automobile Mfg. Co.; capital stock, $100,000; incorporators, C. A. Moeller, C. S. Johnston and F. R. Kanig.

New York—Rainier Motor Car Co.; capital stock, $1,000,000; to manufacture motor vehicles; incorporators, John T. Rainier and P. Lineberger, of 1629 Broadway; G. C. Comstock and W. H. Randall, of 68 William street, New York city.

Trenton, N. J.—P. S. Pearl & Co.; capital stock, $5,000; to manufacture and deal in motor cars; incorporators, Eugene, Julia and Philip S. Pearl, all of Passaic.

Jersey City, N. J.—Bowly Auto Pneumatic Tire Co.; capital stock, $100,000; to manufacture rubber tires for motor cars and other vehicles; incorporators, W. W. Coosh and James B. Markie.

Pittsfield, Mass.—Berkshire Motor Car Co.; capital stock, $400,000; incorporators, William F. Wood and Harry F. Sisson.

Pittsfield, Mass.—Stilson Motor Car Co.; capital stock, $100,000; to deal in motor cars.

Chicago—Fanning Tire Co.; capital stock, $3,000; to manufacture and deal in supplies; incorporators, F. J. Fanning, C. E. Noble and A. J. Doyle, Jr.